code a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3028 precursor RNA is designated SEQ ID:1183, and is provided hereinbelow with reference to the sequence listing part.

[42325] VGAM3028 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3028 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42326] An enzyme complex designated DICER COMPLEX, dices the VGAM3028 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3028 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide se-

quence of VGAM3028 RNA is designated SEQ ID:4253, and is provided hereinbelow with reference to the sequence listing part.

[42327] VGAM3028 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3028 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3028 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42328] VGAM3028 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3028 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3028 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is ap-

preciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3028 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3028 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42329] The complementary binding of VGAM3028 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3028 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3028 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3028 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42330] It is appreciated that VGAM3028 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3028 host target genes. The mRNA of

each one of this plurality of VGAM3028 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3028 RNA, herein designated VGAM RNA, and which when bound by VGAM3028 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3028 host target proteins.

[42331] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3028 gene, herein designated VGAM GENE, on one or more VGAM3028 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science

294,779 (2001)).

[42332] It is yet further appreciated that a function of VGAM3028 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3028 include diagnosis, prevention and treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGAM3028 correlate with, and may be deduced from, the identity of the host target genes which VGAM3028 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42333] Nucleotide sequences of the VGAM3028 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3028 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3028 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3028 are further described hereinbelow with reference to Table 1.

[42334] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3028 RNA, herein designated VGAM RNA, are de-

scribed hereinbelow with reference to Table 2.

[42335] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3029 (VGAM3029) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42336] VGAM3029 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3029 was detected is described hereinabove with reference to Figs. 2-8.

[42337] VGAM3029 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Theilovirus. VGAM3029 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42338] VGAM3029 gene, herein designated VGAM GENE, encodes a VGAM3029 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3029 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3029 precur-

sor RNA is designated SEQ ID:1189, and is provided hereinbelow with reference to the sequence listing part.

[42339] VGAM3029 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3029 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42340] An enzyme complex designated DICER COMPLEX, dices the VGAM3029 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3029 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide sequence of VGAM3029 RNA is designated SEQ ID:4259, and is provided hereinbelow with reference to the sequence

listing part.

[42341] VGAM3029 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3029 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3029 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42342] VGAM3029 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3029 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3029 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not

meant to be limiting VGAM3029 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3029 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42343] The complementary binding of VGAM3029 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3029 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3029 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3029 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42344] It is appreciated that VGAM3029 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3029 host target genes. The mRNA of each one of this plurality of VGAM3029 host target genes comprises one or more host target binding sites, each

having a nucleotide sequence which is at least partly complementary to VGAM3029 RNA, herein designated VGAM RNA, and which when bound by VGAM3029 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3029 host target proteins.

[42345] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3029 gene, herein designated VGAM GENE, on one or more VGAM3029 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42346] It is yet further appreciated that a function of VGAM3029

is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3029 include diagnosis, prevention and treatment of viral infection by Theilovirus. Specific functions, and accordingly utilities, of VGAM3029 correlate with, and may be deduced from, the identity of the host target genes which VGAM3029 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42347] Nucleotide sequences of the VGAM3029 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3029 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3029 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3029 are further described hereinbelow with reference to Table 1.

[42348] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3029 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42349] Fig. 1 further provides a conceptual description of another

novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3030 (VGAM3030) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42350] VGAM3030 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3030 was detected is described hereinabove with reference to Figs. 2-8.

[42351] VGAM3030 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Molluscum contagiosum virus. VGAM3030 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42352] VGAM3030 gene, herein designated VGAM GENE, encodes a VGAM3030 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3030 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3030 precursor RNA is designated SEQ ID:1184, and is provided here-

inbelow with reference to the sequence listing part.

[42353] VGAM3030 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3030 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42354] An enzyme complex designated DICER COMPLEX, dices the VGAM3030 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3030 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 75%) nucleotide sequence of VGAM3030 RNA is designated SEQ ID:4254, and is provided hereinbelow with reference to the sequence listing part.

[42355] VGAM3030 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3030 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3030 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42356] VGAM3030 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3030 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3030 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3030 RNA, herein designated

VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3030 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42357] The complementary binding of VGAM3030 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3030 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3030 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3030 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42358] It is appreciated that VGAM3030 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3030 host target genes. The mRNA of each one of this plurality of VGAM3030 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly com-

plementary to VGAM3030 RNA, herein designated VGAM RNA, and which when bound by VGAM3030 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3030 host target proteins.

[42359] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3030 gene, herein designated VGAM GENE, on one or more VGAM3030 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42360] It is yet further appreciated that a function of VGAM3030 is inhibition of expression of host target genes, as part of

a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3030 include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGAM3030 correlate with, and may be deduced from, the identity of the host target genes which VGAM3030 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42361] Nucleotide sequences of the VGAM3030 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3030 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3030 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3030 are further described hereinbelow with reference to Table 1.

[42362] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3030 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42363] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present

invention, referred to here as Viral Genomic Address Messenger 3031 (VGAM3031) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42364] VGAM3031 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3031 was detected is described hereinabove with reference to Figs. 2-8.

[42365] VGAM3031 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Sulfolobus virus SIRV-2. VGAM3031 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42366] VGAM3031 gene, herein designated VGAM GENE, encodes a VGAM3031 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3031 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3031 precursor RNA is designated SEQ ID:1190, and is provided hereinbelow with reference to the sequence listing part.

[42367] VGAM3031 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3031 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42368] An enzyme complex designated DICER COMPLEX, dices the VGAM3031 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3031 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide sequence of VGAM3031 RNA is designated SEQ ID:4260, and is provided hereinbelow with reference to the sequence listing part.

[42369] VGAM3031 host target gene, herein designated VGAM

HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3031 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3031 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42370] VGAM3031 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3031 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3031 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3031 RNA, herein designated VGAM RNA, may have a different number of host target

binding sites in untranslated regions of a VGAM3031 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42371] The complementary binding of VGAM3031 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3031 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3031 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3031 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42372] It is appreciated that VGAM3031 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3031 host target genes. The mRNA of each one of this plurality of VGAM3031 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3031 RNA, herein designated VGAM

RNA, and which when bound by VGAM3031 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3031 host target proteins.

[42373] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3031 gene, herein designated VGAM GENE, on one or more VGAM3031 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42374] It is yet further appreciated that a function of VGAM3031 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly,

utilities of VGAM3031 include diagnosis, prevention and treatment of viral infection by Sulfolobus virus SIRV-2. Specific functions, and accordingly utilities, of VGAM3031 correlate with, and may be deduced from, the identity of the host target genes which VGAM3031 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42375] Nucleotide sequences of the VGAM3031 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3031 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3031 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3031 are further described hereinbelow with reference to Table 1.

[42376] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3031 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42377] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Mes-

senger 3032 (VGAM3032) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42378] VGAM3032 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3032 was detected is described hereinabove with reference to Figs. 2-8.

[42379] VGAM3032 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Equine herpesvirus 4. VGAM3032 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42380] VGAM3032 gene, herein designated VGAM GENE, encodes a VGAM3032 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3032 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3032 precursor RNA is designated SEQ ID:1185, and is provided hereinbelow with reference to the sequence listing part.

[42381] VGAM3032 precursor RNA, herein designated VGAM PRE-

CURSOR RNA, folds onto itself, forming VGAM3032 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42382] An enzyme complex designated DICER COMPLEX, dices the VGAM3032 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3032 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3032 RNA is designated SEQ ID:4255, and is provided hereinbelow with reference to the sequence listing part.

[42383] VGAM3032 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger

RNA, VGAM3032 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3032 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42384] VGAM3032 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3032 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3032 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3032 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3032 host

target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42385] The complementary binding of VGAM3032 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3032 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3032 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3032 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42386] It is appreciated that VGAM3032 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3032 host target genes. The mRNA of each one of this plurality of VGAM3032 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3032 RNA, herein designated VGAM RNA, and which when bound by VGAM3032 RNA, herein

designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3032 host target proteins.

[42387] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3032 gene, herein designated VGAM GENE, on one or more VGAM3032 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42388] It is yet further appreciated that a function of VGAM3032 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3032 include diagnosis, prevention and

treatment of viral infection by Equine herpesvirus 4. Specific functions, and accordingly utilities, of VGAM3032 correlate with, and may be deduced from, the identity of the host target genes which VGAM3032 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42389] Nucleotide sequences of the VGAM3032 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3032 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3032 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3032 are further described hereinbelow with reference to Table 1.

[42390] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3032 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42391] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3033 (VGAM3033) viral gene, which modulates ex-

pression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42392] VGAM3033 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3033 was detected is described hereinabove with reference to Figs. 2-8.

[42393] VGAM3033 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Amsacta moorei entomopoxvirus. VGAM3033 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42394] VGAM3033 gene, herein designated VGAM GENE, encodes a VGAM3033 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3033 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3033 precursor RNA is designated SEQ ID:1186, and is provided hereinbelow with reference to the sequence listing part.

[42395] VGAM3033 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3033 folded

precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42396] An enzyme complex designated DICER COMPLEX, dices the VGAM3033 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3033 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3033 RNA is designated SEQ ID:4256, and is provided hereinbelow with reference to the sequence listing part.

[42397] VGAM3033 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3033 host target RNA, herein designated

VGAM HOST TARGET RNA. VGAM3033 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42398] VGAM3033 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3033 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3033 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3033 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3033 host target RNA, herein designated VGAM HOST TARGET RNA.

It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42399] The complementary binding of VGAM3033 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3033 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3033 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3033 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42400] It is appreciated that VGAM3033 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3033 host target genes. The mRNA of each one of this plurality of VGAM3033 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3033 RNA, herein designated VGAM RNA, and which when bound by VGAM3033 RNA, herein designated VGAM RNA, causes inhibition of translation of

respective one or more VGAM3033 host target proteins.

[42401] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3033 gene, herein designated VGAM GENE, on one or more VGAM3033 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42402] It is yet further appreciated that a function of VGAM3033 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3033 include diagnosis, prevention and treatment of viral infection by Amsacta moorei ento-

mopoxvirus. Specific functions, and accordingly utilities, of VGAM3033 correlate with, and may be deduced from, the identity of the host target genes which VGAM3033 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42403] Nucleotide sequences of the VGAM3033 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3033 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3033 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3033 are further described hereinbelow with reference to Table 1.

[42404] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3033 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42405] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3034 (VGAM3034) viral gene, which modulates expression of respective host target genes thereof, the func-

tion and utility of which host target genes is known in the art.

[42406] VGAM3034 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3034 was detected is described hereinabove with reference to Figs. 2-8.

[42407] VGAM3034 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Rat cytomegalovirus. VGAM3034 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42408] VGAM3034 gene, herein designated VGAM GENE, encodes a VGAM3034 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3034 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3034 precursor RNA is designated SEQ ID:1187, and is provided hereinbelow with reference to the sequence listing part.

[42409] VGAM3034 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3034 folded precursor RNA, herein designated VGAM FOLDED PRECUR-

SOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42410] An enzyme complex designated DICER COMPLEX, dices the VGAM3034 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3034 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3034 RNA is designated SEQ ID:4257, and is provided hereinbelow with reference to the sequence listing part.

[42411] VGAM3034 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3034 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3034 host target RNA,

herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42412] VGAM3034 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3034 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3034 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3034 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3034 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host tar-

get binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42413] The complementary binding of VGAM3034 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3034 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3034 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3034 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42414] It is appreciated that VGAM3034 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3034 host target genes. The mRNA of each one of this plurality of VGAM3034 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3034 RNA, herein designated VGAM RNA, and which when bound by VGAM3034 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3034 host target proteins.

[42415] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3034 gene, herein designated VGAM GENE, on one or more VGAM3034 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42416] It is yet further appreciated that a function of VGAM3034 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3034 include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGAM3034

correlate with, and may be deduced from, the identity of the host target genes which VGAM3034 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42417] Nucleotide sequences of the VGAM3034 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3034 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3034 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3034 are further described hereinbelow with reference to Table 1.

[42418] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3034 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42419] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3035 (VGAM3035) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the

art.

[42420] VGAM3035 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3035 was detected is described hereinabove with reference to Figs. 2-8.

[42421] VGAM3035 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Meleagrid herpesvirus 1. VGAM3035 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42422] VGAM3035 gene, herein designated VGAM GENE, encodes a VGAM3035 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3035 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3035 precursor RNA is designated SEQ ID:1191, and is provided hereinbelow with reference to the sequence listing part.

[42423] VGAM3035 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3035 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure.

As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42424] An enzyme complex designated DICER COMPLEX, dices the VGAM3035 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3035 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide sequence of VGAM3035 RNA is designated SEQ ID:4261, and is provided hereinbelow with reference to the sequence listing part.

[42425] VGAM3035 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3035 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3035 host target RNA, herein designated VGAM HOST TARGET RNA, comprises

three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42426] VGAM3035 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3035 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3035 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3035 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3035 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an

example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42427] The complementary binding of VGAM3035 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3035 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3035 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3035 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42428] It is appreciated that VGAM3035 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3035 host target genes. The mRNA of each one of this plurality of VGAM3035 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3035 RNA, herein designated VGAM RNA, and which when bound by VGAM3035 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3035 host target proteins.

[42429] It is further appreciated by one skilled in the art that the

mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3035 gene, herein designated VGAM GENE, on one or more VGAM3035 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42430] It is yet further appreciated that a function of VGAM3035 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3035 include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGAM3035 correlate with, and may be deduced from, the identity of

the host target genes which VGAM3035 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42431] Nucleotide sequences of the VGAM3035 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3035 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3035 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3035 are further described hereinbelow with reference to Table 1.

[42432] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3035 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42433] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3036 (VGAM3036) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42434] VGAM3036 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3036 was detected is described hereinabove with reference to Figs. 2-8.

[42435] VGAM3036 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Human parainfluenza virus 1 strain Washington/1964. VGAM3036 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42436] VGAM3036 gene, herein designated VGAM GENE, encodes a VGAM3036 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3036 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3036 precursor RNA is designated SEQ ID:1192, and is provided hereinbelow with reference to the sequence listing part.

[42437] VGAM3036 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3036 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typi-

cal of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42438] An enzyme complex designated DICER COMPLEX, dices the VGAM3036 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3036 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3036 RNA is designated SEQ ID:4262, and is provided hereinbelow with reference to the sequence listing part.

[42439] VGAM3036 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3036 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3036 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding

gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42440] VGAM3036 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3036 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3036 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3036 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3036 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be lo-

cated in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42441] The complementary binding of VGAM3036 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3036 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3036 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3036 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42442] It is appreciated that VGAM3036 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3036 host target genes. The mRNA of each one of this plurality of VGAM3036 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3036 RNA, herein designated VGAM RNA, and which when bound by VGAM3036 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3036 host target proteins.

[42443] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with

specific reference to translational inhibition exerted by VGAM3036 gene, herein designated VGAM GENE, on one or more VGAM3036 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42444] It is yet further appreciated that a function of VGAM3036 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3036 include diagnosis, prevention and treatment of viral infection by Human parainfluenza virus 1 strain Washington/1964. Specific functions, and accordingly utilities, of VGAM3036 correlate with, and may be deduced from, the identity of the host target genes which

VGAM3036 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42445] Nucleotide sequences of the VGAM3036 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3036 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3036 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3036 are further described hereinbelow with reference to Table 1.

[42446] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3036 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42447] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3037 (VGAM3037) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42448] VGAM3037 is a novel bioinformatically detected regula-

tory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3037 was detected is described hereinabove with reference to Figs. 2-8.

[42449] VGAM3037 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Chimpanzee cytomegalovirus. VGAM3037 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42450] VGAM3037 gene, herein designated VGAM GENE, encodes a VGAM3037 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3037 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3037 precursor RNA is designated SEQ ID:1196, and is provided hereinbelow with reference to the sequence listing part.

[42451] VGAM3037 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3037 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the

fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42452] An enzyme complex designated DICER COMPLEX, dices the VGAM3037 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3037 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3037 RNA is designated SEQ ID:4266, and is provided hereinbelow with reference to the sequence listing part.

[42453] VGAM3037 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3037 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3037 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and

a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42454] VGAM3037 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3037 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3037 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3037 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3037 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both

3UTR and 5UTR regions.

[42455] The complementary binding of VGAM3037 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3037 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3037 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3037 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42456] It is appreciated that VGAM3037 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3037 host target genes. The mRNA of each one of this plurality of VGAM3037 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3037 RNA, herein designated VGAM RNA, and which when bound by VGAM3037 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3037 host target proteins.

[42457] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by

VGAM3037 gene, herein designated VGAM GENE, on one or more VGAM3037 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42458] It is yet further appreciated that a function of VGAM3037 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3037 include diagnosis, prevention and treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGAM3037 correlate with, and may be deduced from, the identity of the host target genes which VGAM3037 binds and inhibits, and the function of these

host target genes, as elaborated hereinbelow.

[42459] Nucleotide sequences of the VGAM3037 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3037 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3037 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3037 are further described hereinbelow with reference to Table 1.

[42460] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3037 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42461] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3038 (VGAM3038) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42462] VGAM3038 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene.

The method by which VGAM3038 was detected is described hereinabove with reference to Figs. 2-8.

[42463] VGAM3038 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Cucumber mosaic virus. VGAM3038 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42464] VGAM3038 gene, herein designated VGAM GENE, encodes a VGAM3038 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3038 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3038 precursor RNA is designated SEQ ID:1193, and is provided hereinbelow with reference to the sequence listing part.

[42465] VGAM3038 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3038 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the

RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42466] An enzyme complex designated DICER COMPLEX, dices the VGAM3038 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3038 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3038 RNA is designated SEQ ID:4263, and is provided hereinbelow with reference to the sequence listing part.

[42467] VGAM3038 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3038 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3038 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN COD-

ING and 3UTR respectively.

[42468] VGAM3038 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3038 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3038 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3038 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3038 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42469] The complementary binding of VGAM3038 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3038 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3038 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3038 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42470] It is appreciated that VGAM3038 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3038 host target genes. The mRNA of each one of this plurality of VGAM3038 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3038 RNA, herein designated VGAM RNA, and which when bound by VGAM3038 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3038 host target proteins.

[42471] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3038 gene, herein designated VGAM GENE, on one

or more VGAM3038 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42472] It is yet further appreciated that a function of VGAM3038 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3038 include diagnosis, prevention and treatment of viral infection by Cucumber mosaic virus. Specific functions, and accordingly utilities, of VGAM3038 correlate with, and may be deduced from, the identity of the host target genes which VGAM3038 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42473] Nucleotide sequences of the VGAM3038 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3038 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3038 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3038 are further described hereinbelow with reference to Table 1.

[42474] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3038 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42475] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3039 (VGAM3039) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42476] VGAM3039 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3039 was detected is de-

scribed hereinabove with reference to Figs. 2-8.

[42477] VGAM3039 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Pepper ringspot virus. VGAM3039 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42478] VGAM3039 gene, herein designated VGAM GENE, encodes a VGAM3039 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3039 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3039 precursor RNA is designated SEQ ID:1194, and is provided hereinbelow with reference to the sequence listing part.

[42479] VGAM3039 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3039 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial

inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42480] An enzyme complex designated DICER COMPLEX, dices the VGAM3039 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3039 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3039 RNA is designated SEQ ID:4264, and is provided hereinbelow with reference to the sequence listing part.

[42481] VGAM3039 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3039 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3039 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42482] VGAM3039 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3039 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3039 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3039 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3039 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42483] The complementary binding of VGAM3039 RNA, herein

designated VGAM RNA, to host target binding sites on VGAM3039 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3039 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3039 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42484] It is appreciated that VGAM3039 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3039 host target genes. The mRNA of each one of this plurality of VGAM3039 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3039 RNA, herein designated VGAM RNA, and which when bound by VGAM3039 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3039 host target proteins.

[42485] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3039 gene, herein designated VGAM GENE, on one or more VGAM3039 host target gene, herein designated

VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42486] It is yet further appreciated that a function of VGAM3039 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3039 include diagnosis, prevention and treatment of viral infection by Pepper ringspot virus. Specific functions, and accordingly utilities, of VGAM3039 correlate with, and may be deduced from, the identity of the host target genes which VGAM3039 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42487] Nucleotide sequences of the VGAM3039 precursor RNA,

herein designated VGAM PRECURSOR RNA, and of the diced VGAM3039 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3039 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3039 are further described hereinbelow with reference to Table 1.

[42488] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3039 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42489] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3040 (VGAM3040) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42490] VGAM3040 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3040 was detected is described hereinabove with reference to Figs. 2-8.

[42491] VGAM3040 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Paramecium bursaria Chlorella virus 1. VGAM3040 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42492] VGAM3040 gene, herein designated VGAM GENE, encodes a VGAM3040 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3040 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3040 precursor RNA is designated SEQ ID:1195, and is provided hereinbelow with reference to the sequence listing part.

[42493] VGAM3040 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3040 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of

the second half thereof.

[42494] An enzyme complex designated DICER COMPLEX, dices the VGAM3040 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3040 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3040 RNA is designated SEQ ID:4265, and is provided hereinbelow with reference to the sequence listing part.

[42495] VGAM3040 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3040 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3040 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42496] VGAM3040 RNA, herein designated VGAM RNA, binds

complementarily to one or more host target binding sites located in untranslated regions of VGAM3040 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3040 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3040 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3040 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42497] The complementary binding of VGAM3040 RNA, herein designated VGAM RNA, to host target binding sites on

VGAM3040 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3040 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3040 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42498] It is appreciated that VGAM3040 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3040 host target genes. The mRNA of each one of this plurality of VGAM3040 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3040 RNA, herein designated VGAM RNA, and which when bound by VGAM3040 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3040 host target proteins.

[42499] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3040 gene, herein designated VGAM GENE, on one or more VGAM3040 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other

known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42500] It is yet further appreciated that a function of VGAM3040 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3040 include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGAM3040 correlate with, and may be deduced from, the identity of the host target genes which VGAM3040 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42501] Nucleotide sequences of the VGAM3040 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the

diced VGAM3040 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3040 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3040 are further described hereinbelow with reference to Table 1.

[42502] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3040 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42503] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3041 (VGAM3041) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42504] VGAM3041 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3041 was detected is described hereinabove with reference to Figs. 2-8.

[42505] VGAM3041 gene, herein designated VGAM GENE, is a viral

gene contained in the genome of Rice black streaked dwarf virus. VGAM3041 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42506] VGAM3041 gene, herein designated VGAM GENE, encodes a VGAM3041 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3041 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3041 precursor RNA is designated SEQ ID:1197, and is provided hereinbelow with reference to the sequence listing part.

[42507] VGAM3041 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3041 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42508] An enzyme complex designated DICER COMPLEX, dices the VGAM3041 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3041 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 75%) nucleotide sequence of VGAM3041 RNA is designated SEQ ID:4267, and is provided hereinbelow with reference to the sequence listing part.

[42509] VGAM3041 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3041 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3041 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42510] VGAM3041 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites

located in untranslated regions of VGAM3041 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3041 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3041 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3041 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42511] The complementary binding of VGAM3041 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3041 host target RNA, herein designated VGAM

HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3041 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3041 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42512] It is appreciated that VGAM3041 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3041 host target genes. The mRNA of each one of this plurality of VGAM3041 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3041 RNA, herein designated VGAM RNA, and which when bound by VGAM3041 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3041 host target proteins.

[42513] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3041 gene, herein designated VGAM GENE, on one or more VGAM3041 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove

with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42514] It is yet further appreciated that a function of VGAM3041 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3041 include diagnosis, prevention and treatment of viral infection by Rice black streaked dwarf virus. Specific functions, and accordingly utilities, of VGAM3041 correlate with, and may be deduced from, the identity of the host target genes which VGAM3041 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42515] Nucleotide sequences of the VGAM3041 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3041 RNA, herein designated VGAM RNA, and

a schematic representation of the secondary folding of VGAM3041 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3041 are further described hereinbelow with reference to Table 1.

[42516] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3041 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42517] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3042 (VGAM3042) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42518] VGAM3042 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3042 was detected is described hereinabove with reference to Figs. 2-8.

[42519] VGAM3042 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Human herpesvirus 5.

VGAM3042 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42520] VGAM3042 gene, herein designated VGAM GENE, encodes a VGAM3042 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3042 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3042 precursor RNA is designated SEQ ID:1198, and is provided hereinbelow with reference to the sequence listing part.

[42521] VGAM3042 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3042 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42522] An enzyme complex designated DICER COMPLEX, dices

the VGAM3042 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3042 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3042 RNA is designated SEQ ID:4268, and is provided hereinbelow with reference to the sequence listing part.

[42523] VGAM3042 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3042 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3042 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42524] VGAM3042 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3042 host target

RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3042 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3042 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3042 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42525] The complementary binding of VGAM3042 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3042 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE

II and BINDING SITE III, inhibits translation of VGAM3042 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3042 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42526] It is appreciated that VGAM3042 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3042 host target genes. The mRNA of each one of this plurality of VGAM3042 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3042 RNA, herein designated VGAM RNA, and which when bound by VGAM3042 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3042 host target proteins.

[42527] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3042 gene, herein designated VGAM GENE, on one or more VGAM3042 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a spe-

cific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42528] It is yet further appreciated that a function of VGAM3042 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3042 include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGAM3042 correlate with, and may be deduced from, the identity of the host target genes which VGAM3042 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42529] Nucleotide sequences of the VGAM3042 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3042 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of

VGAM3042 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3042 are further described hereinbelow with reference to Table 1.

[42530] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3042 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42531] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3043 (VGAM3043) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42532] VGAM3043 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3043 was detected is described hereinabove with reference to Figs. 2-8.

[42533] VGAM3043 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Cercopithecine herpesvirus 7. VGAM3043 host target gene, herein desig-

nated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42534] VGAM3043 gene, herein designated VGAM GENE, encodes a VGAM3043 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3043 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3043 precursor RNA is designated SEQ ID:1199, and is provided hereinbelow with reference to the sequence listing part.

[42535] VGAM3043 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3043 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42536] An enzyme complex designated DICER COMPLEX, dices the VGAM3043 folded precursor RNA, herein designated

VGAM FOLDED PRECURSOR RNA, into VGAM3043 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide sequence of VGAM3043 RNA is designated SEQ ID:4269, and is provided hereinbelow with reference to the sequence listing part.

[42537] VGAM3043 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3043 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3043 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42538] VGAM3043 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3043 host target RNA, herein designated VGAM HOST TARGET RNA. This

complementary binding is due to the fact that the nucleotide sequence of VGAM3043 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3043 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3043 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42539] The complementary binding of VGAM3043 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3043 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3043

host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3043 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42540] It is appreciated that VGAM3043 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3043 host target genes. The mRNA of each one of this plurality of VGAM3043 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3043 RNA, herein designated VGAM RNA, and which when bound by VGAM3043 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3043 host target proteins.

[42541] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3043 gene, herein designated VGAM GENE, on one or more VGAM3043 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated

only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42542] It is yet further appreciated that a function of VGAM3043 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3043 include diagnosis, prevention and treatment of viral infection by Cercopithecine herpesvirus 7. Specific functions, and accordingly utilities, of VGAM3043 correlate with, and may be deduced from, the identity of the host target genes which VGAM3043 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42543] Nucleotide sequences of the VGAM3043 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3043 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3043 folded precursor RNA, herein designated

VGAM FOLDED PRECURSOR RNA, of VGAM3043 are further described hereinbelow with reference to Table 1.

[42544] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3043 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42545] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3044 (VGAM3044) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42546] VGAM3044 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3044 was detected is described hereinabove with reference to Figs. 2-8.

[42547] VGAM3044 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Meleagrid herpesvirus 1. VGAM3044 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the

human genome.

[42548] VGAM3044 gene, herein designated VGAM GENE, encodes a VGAM3044 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3044 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3044 precursor RNA is designated SEQ ID:1200, and is provided hereinbelow with reference to the sequence listing part.

[42549] VGAM3044 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3044 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42550] An enzyme complex designated DICER COMPLEX, dices the VGAM3044 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3044 RNA,

herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3044 RNA is designated SEQ ID:4270, and is provided hereinbelow with reference to the sequence listing part.

[42551] VGAM3044 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3044 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3044 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42552] VGAM3044 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3044 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nu-

cleotide sequence of VGAM3044 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3044 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3044 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42553] The complementary binding of VGAM3044 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3044 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3044 host target RNA, herein designated VGAM HOST TARGET

RNA, into VGAM3044 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42554] It is appreciated that VGAM3044 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3044 host target genes. The mRNA of each one of this plurality of VGAM3044 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3044 RNA, herein designated VGAM RNA, and which when bound by VGAM3044 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3044 host target proteins.

[42555] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3044 gene, herein designated VGAM GENE, on one or more VGAM3044 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4

and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42556] It is yet further appreciated that a function of VGAM3044 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3044 include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGAM3044 correlate with, and may be deduced from, the identity of the host target genes which VGAM3044 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42557] Nucleotide sequences of the VGAM3044 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3044 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3044 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3044 are further

described hereinbelow with reference to Table 1.

[42558] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3044 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42559] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3045 (VGAM3045) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42560] VGAM3045 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3045 was detected is described hereinabove with reference to Figs. 2-8.

[42561] VGAM3045 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Paramecium bursaria Chlorella virus 1. VGAM3045 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42562] VGAM3045 gene, herein designated VGAM GENE, encodes a VGAM3045 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3045 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3045 precursor RNA is designated SEQ ID:1201, and is provided hereinbelow with reference to the sequence listing part.

[42563] VGAM3045 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3045 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42564] An enzyme complex designated DICER COMPLEX, dices the VGAM3045 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3045 RNA, herein designated VGAM RNA, a single stranded ~22 nt

long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide sequence of VGAM3045 RNA is designated SEQ ID:4271, and is provided hereinbelow with reference to the sequence listing part.

[42565] VGAM3045 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3045 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3045 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42566] VGAM3045 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3045 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3045 RNA, herein designated

VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3045 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3045 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42567] The complementary binding of VGAM3045 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3045 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3045 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3045 host target protein, herein desig-

nated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42568] It is appreciated that VGAM3045 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3045 host target genes. The mRNA of each one of this plurality of VGAM3045 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3045 RNA, herein designated VGAM RNA, and which when bound by VGAM3045 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3045 host target proteins.

[42569] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3045 gene, herein designated VGAM GENE, on one or more VGAM3045 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are

also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42570] It is yet further appreciated that a function of VGAM3045 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3045 include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGAM3045 correlate with, and may be deduced from, the identity of the host target genes which VGAM3045 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42571] Nucleotide sequences of the VGAM3045 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3045 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3045 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3045 are further described hereinbelow with reference to Table 1.

[42572] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3045 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42573] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3046 (VGAM3046) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42574] VGAM3046 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3046 was detected is described hereinabove with reference to Figs. 2-8.

[42575] VGAM3046 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Tupaia herpesvirus. VGAM3046 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42576] VGAM3046 gene, herein designated VGAM GENE, encodes

a VGAM3046 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3046 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3046 precursor RNA is designated SEQ ID:2554, and is provided hereinbelow with reference to the sequence listing part.

[42577] VGAM3046 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3046 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42578] An enzyme complex designated DICER COMPLEX, dices the VGAM3046 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3046 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a

hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3046 RNA is designated SEQ ID:5624, and is provided hereinbelow with reference to the sequence listing part.

[42579] VGAM3046 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3046 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3046 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42580] VGAM3046 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3046 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3046 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed

sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3046 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3046 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42581] The complementary binding of VGAM3046 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3046 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3046 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3046 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target

protein is therefore outlined by a broken line.

[42582] It is appreciated that VGAM3046 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3046 host target genes. The mRNA of each one of this plurality of VGAM3046 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3046 RNA, herein designated VGAM RNA, and which when bound by VGAM3046 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3046 host target proteins.

[42583] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3046 gene, herein designated VGAM GENE, on one or more VGAM3046 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate ex-

pression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42584] It is yet further appreciated that a function of VGAM3046 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3046 include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGAM3046 correlate with, and may be deduced from, the identity of the host target genes which VGAM3046 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42585] Nucleotide sequences of the VGAM3046 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3046 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3046 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3046 are further described hereinbelow with reference to Table 1.

[42586] Nucleotide sequences of host target binding sites, such as

BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3046 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42587] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3047 (VGAM3047) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42588] VGAM3047 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3047 was detected is described hereinabove with reference to Figs. 2-8.

[42589] VGAM3047 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Human adenovirus F. VGAM3047 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42590] VGAM3047 gene, herein designated VGAM GENE, encodes a VGAM3047 precursor RNA, herein designated VGAM

PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3047 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3047 precursor RNA is designated SEQ ID:2555, and is provided hereinbelow with reference to the sequence listing part.

[42591] VGAM3047 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3047 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42592] An enzyme complex designated DICER COMPLEX, dices the VGAM3047 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3047 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short

~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3047 RNA is designated SEQ ID:5625, and is provided hereinbelow with reference to the sequence listing part.

[42593] VGAM3047 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3047 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3047 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42594] VGAM3047 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3047 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3047 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host

target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3047 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3047 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42595] The complementary binding of VGAM3047 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3047 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3047 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3047 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42596] It is appreciated that VGAM3047 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3047 host target genes. The mRNA of each one of this plurality of VGAM3047 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3047 RNA, herein designated VGAM RNA, and which when bound by VGAM3047 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3047 host target proteins.

[42597] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3047 gene, herein designated VGAM GENE, on one or more VGAM3047 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, al-

though specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42598] It is yet further appreciated that a function of VGAM3047 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3047 include diagnosis, prevention and treatment of viral infection by Human adenovirus F. Specific functions, and accordingly utilities, of VGAM3047 correlate with, and may be deduced from, the identity of the host target genes which VGAM3047 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42599] Nucleotide sequences of the VGAM3047 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3047 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3047 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3047 are further described hereinbelow with reference to Table 1.

[42600] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of

Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3047 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42601] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3048 (VGAM3048) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42602] VGAM3048 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3048 was detected is described hereinabove with reference to Figs. 2-8.

[42603] VGAM3048 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Human parainfluenza virus 3. VGAM3048 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42604] VGAM3048 gene, herein designated VGAM GENE, encodes a VGAM3048 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and un-

like most ordinary genes, VGAM3048 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3048 precursor RNA is designated SEQ ID:1202, and is provided hereinbelow with reference to the sequence listing part.

[42605] VGAM3048 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3048 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42606] An enzyme complex designated DICER COMPLEX, dices the VGAM3048 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3048 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex

comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3048 RNA is designated SEQ ID:4272, and is provided hereinbelow with reference to the sequence listing part.

[42607] VGAM3048 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3048 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3048 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42608] VGAM3048 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3048 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3048 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3

such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3048 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3048 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42609] The complementary binding of VGAM3048 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3048 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3048 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3048 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42610] It is appreciated that VGAM3048 host target gene, herein

designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3048 host target genes. The mRNA of each one of this plurality of VGAM3048 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3048 RNA, herein designated VGAM RNA, and which when bound by VGAM3048 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3048 host target proteins.

[42611] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3048 gene, herein designated VGAM GENE, on one or more VGAM3048 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these

other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42612] It is yet further appreciated that a function of VGAM3048 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3048 include diagnosis, prevention and treatment of viral infection by Human parainfluenza virus 3. Specific functions, and accordingly utilities, of VGAM3048 correlate with, and may be deduced from, the identity of the host target genes which VGAM3048 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42613] Nucleotide sequences of the VGAM3048 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3048 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3048 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3048 are further described hereinbelow with reference to Table 1.

[42614] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the

complementarity of each of these host target binding sites to VGAM3048 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42615] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3049 (VGAM3049) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42616] VGAM3049 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3049 was detected is described hereinabove with reference to Figs. 2-8.

[42617] VGAM3049 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Ateline herpesvirus 3. VGAM3049 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42618] VGAM3049 gene, herein designated VGAM GENE, encodes a VGAM3049 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3049 precursor RNA,

herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3049 precursor RNA is designated SEQ ID:2559, and is provided hereinbelow with reference to the sequence listing part.

[42619] VGAM3049 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3049 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42620] An enzyme complex designated DICER COMPLEX, dices the VGAM3049 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3049 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other

necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3049 RNA is designated SEQ ID:5629, and is provided hereinbelow with reference to the sequence listing part.

[42621] VGAM3049 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3049 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3049 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42622] VGAM3049 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3049 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3049 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I,

BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3049 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3049 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42623] The complementary binding of VGAM3049 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3049 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3049 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3049 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42624] It is appreciated that VGAM3049 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents

a plurality of VGAM3049 host target genes. The mRNA of each one of this plurality of VGAM3049 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3049 RNA, herein designated VGAM RNA, and which when bound by VGAM3049 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3049 host target proteins.

[42625] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3049 gene, herein designated VGAM GENE, on one or more VGAM3049 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G.,

Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42626] It is yet further appreciated that a function of VGAM3049 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3049 include diagnosis, prevention and treatment of viral infection by Ateline herpesvirus 3. Specific functions, and accordingly utilities, of VGAM3049 correlate with, and may be deduced from, the identity of the host target genes which VGAM3049 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42627] Nucleotide sequences of the VGAM3049 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3049 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3049 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3049 are further described hereinbelow with reference to Table 1.

[42628] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites

to VGAM3049 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42629] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3050 (VGAM3050) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42630] VGAM3050 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3050 was detected is described hereinabove with reference to Figs. 2-8.

[42631] VGAM3050 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Mice minute virus. VGAM3050 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42632] VGAM3050 gene, herein designated VGAM GENE, encodes a VGAM3050 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3050 precursor RNA, herein designated VGAM PRECURSOR RNA, does not en-

code a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3050 precursor RNA is designated SEQ ID:2556, and is provided hereinbelow with reference to the sequence listing part.

[42633] VGAM3050 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3050 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42634] An enzyme complex designated DICER COMPLEX, dices the VGAM3050 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3050 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide se-

quence of VGAM3050 RNA is designated SEQ ID:5626, and is provided hereinbelow with reference to the sequence listing part.

[42635] VGAM3050 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3050 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3050 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42636] VGAM3050 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3050 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3050 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is ap-

preciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3050 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3050 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42637] The complementary binding of VGAM3050 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3050 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3050 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3050 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42638] It is appreciated that VGAM3050 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3050 host target genes. The mRNA of

each one of this plurality of VGAM3050 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3050 RNA, herein designated VGAM RNA, and which when bound by VGAM3050 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3050 host target proteins.

[42639] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3050 gene, herein designated VGAM GENE, on one or more VGAM3050 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science

294,779 (2001)).

[42640] It is yet further appreciated that a function of VGAM3050 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3050 include diagnosis, prevention and treatment of viral infection by Mice minute virus. Specific functions, and accordingly utilities, of VGAM3050 correlate with, and may be deduced from, the identity of the host target genes which VGAM3050 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42641] Nucleotide sequences of the VGAM3050 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3050 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3050 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3050 are further described hereinbelow with reference to Table 1.

[42642] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3050 RNA, herein designated VGAM RNA, are de-

scribed hereinbelow with reference to Table 2.

[42643] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3051 (VGAM3051) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42644] VGAM3051 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3051 was detected is described hereinabove with reference to Figs. 2-8.

[42645] VGAM3051 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Bovine adenovirus D. VGAM3051 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42646] VGAM3051 gene, herein designated VGAM GENE, encodes a VGAM3051 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3051 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly

similar to the nucleotide sequence of VGAM3051 precursor RNA is designated SEQ ID:2557, and is provided hereinbelow with reference to the sequence listing part.

[42647] VGAM3051 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3051 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42648] An enzyme complex designated DICER COMPLEX, dices the VGAM3051 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3051 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3051 RNA is designated SEQ ID:5627, and

is provided hereinbelow with reference to the sequence listing part.

[42649] VGAM3051 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3051 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3051 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42650] VGAM3051 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3051 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3051 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites

shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3051 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3051 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42651] The complementary binding of VGAM3051 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3051 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3051 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3051 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42652] It is appreciated that VGAM3051 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3051 host target genes. The mRNA of each one of this plurality of VGAM3051 host target genes

comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3051 RNA, herein designated VGAM RNA, and which when bound by VGAM3051 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3051 host target proteins.

[42653] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3051 gene, herein designated VGAM GENE, on one or more VGAM3051 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42654] It is yet further appreciated that a function of VGAM3051 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3051 include diagnosis, prevention and treatment of viral infection by Bovine adenovirus D. Specific functions, and accordingly utilities, of VGAM3051 correlate with, and may be deduced from, the identity of the host target genes which VGAM3051 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42655] Nucleotide sequences of the VGAM3051 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3051 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3051 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3051 are further described hereinbelow with reference to Table 1.

[42656] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3051 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42657] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3052 (VGAM3052) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42658] VGAM3052 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3052 was detected is described hereinabove with reference to Figs. 2-8.

[42659] VGAM3052 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Paramecium bursaria Chlorella virus 1. VGAM3052 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42660] VGAM3052 gene, herein designated VGAM GENE, encodes a VGAM3052 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3052 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3052 precur-

sor RNA is designated SEQ ID:2563, and is provided hereinbelow with reference to the sequence listing part.

[42661] VGAM3052 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3052 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42662] An enzyme complex designated DICER COMPLEX, dices the VGAM3052 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3052 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3052 RNA is designated SEQ ID:5633, and is provided hereinbelow with reference to the sequence

listing part.

[42663] VGAM3052 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3052 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3052 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42664] VGAM3052 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3052 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3052 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not

meant to be limiting VGAM3052 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3052 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42665] The complementary binding of VGAM3052 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3052 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3052 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3052 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42666] It is appreciated that VGAM3052 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3052 host target genes. The mRNA of each one of this plurality of VGAM3052 host target genes comprises one or more host target binding sites, each

having a nucleotide sequence which is at least partly complementary to VGAM3052 RNA, herein designated VGAM RNA, and which when bound by VGAM3052 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3052 host target proteins.

[42667] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3052 gene, herein designated VGAM GENE, on one or more VGAM3052 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42668] It is yet further appreciated that a function of VGAM3052

is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3052 include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGAM3052 correlate with, and may be deduced from, the identity of the host target genes which VGAM3052 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42669] Nucleotide sequences of the VGAM3052 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3052 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3052 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3052 are further described hereinbelow with reference to Table 1.

[42670] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3052 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42671] Fig. 1 further provides a conceptual description of another

novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3053 (VGAM3053) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42672] VGAM3053 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3053 was detected is described hereinabove with reference to Figs. 2-8.

[42673] VGAM3053 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Cowpox virus. VGAM3053 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42674] VGAM3053 gene, herein designated VGAM GENE, encodes a VGAM3053 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3053 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3053 precursor RNA is designated SEQ ID:2564, and is provided here-

inbelow with reference to the sequence listing part.

[42675] VGAM3053 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3053 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42676] An enzyme complex designated DICER COMPLEX, dices the VGAM3053 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3053 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3053 RNA is designated SEQ ID:5634, and is provided hereinbelow with reference to the sequence listing part.

[42677] VGAM3053 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3053 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3053 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42678] VGAM3053 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3053 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3053 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3053 RNA, herein designated

VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3053 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42679] The complementary binding of VGAM3053 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3053 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3053 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3053 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42680] It is appreciated that VGAM3053 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3053 host target genes. The mRNA of each one of this plurality of VGAM3053 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly com-

plementary to VGAM3053 RNA, herein designated VGAM RNA, and which when bound by VGAM3053 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3053 host target proteins.

[42681] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3053 gene, herein designated VGAM GENE, on one or more VGAM3053 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42682] It is yet further appreciated that a function of VGAM3053 is inhibition of expression of host target genes, as part of

a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3053 include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGAM3053 correlate with, and may be deduced from, the identity of the host target genes which VGAM3053 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42683] Nucleotide sequences of the VGAM3053 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3053 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3053 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3053 are further described hereinbelow with reference to Table 1.

[42684] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3053 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42685] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present

invention, referred to here as Viral Genomic Address Messenger 3054 (VGAM3054) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42686] VGAM3054 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3054 was detected is described hereinabove with reference to Figs. 2-8.

[42687] VGAM3054 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Fowl adenovirus D. VGAM3054 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42688] VGAM3054 gene, herein designated VGAM GENE, encodes a VGAM3054 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3054 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3054 precursor RNA is designated SEQ ID:2558, and is provided hereinbelow with reference to the sequence listing part.

[42689] VGAM3054 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3054 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42690] An enzyme complex designated DICER COMPLEX, dices the VGAM3054 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3054 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3054 RNA is designated SEQ ID:5628, and is provided hereinbelow with reference to the sequence listing part.

[42691] VGAM3054 host target gene, herein designated VGAM

HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3054 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3054 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42692] VGAM3054 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3054 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3054 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3054 RNA, herein designated VGAM RNA, may have a different number of host target

binding sites in untranslated regions of a VGAM3054 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42693] The complementary binding of VGAM3054 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3054 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3054 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3054 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42694] It is appreciated that VGAM3054 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3054 host target genes. The mRNA of each one of this plurality of VGAM3054 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3054 RNA, herein designated VGAM

RNA, and which when bound by VGAM3054 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3054 host target proteins.

[42695] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3054 gene, herein designated VGAM GENE, on one or more VGAM3054 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42696] It is yet further appreciated that a function of VGAM3054 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly,

utilities of VGAM3054 include diagnosis, prevention and treatment of viral infection by Fowl adenovirus D. Specific functions, and accordingly utilities, of VGAM3054 correlate with, and may be deduced from, the identity of the host target genes which VGAM3054 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42697] Nucleotide sequences of the VGAM3054 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3054 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3054 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3054 are further described hereinbelow with reference to Table 1.

[42698] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3054 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42699] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Mes-

senger 3055 (VGAM3055) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42700] VGAM3055 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3055 was detected is described hereinabove with reference to Figs. 2-8.

[42701] VGAM3055 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Bovine herpesvirus 1. VGAM3055 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42702] VGAM3055 gene, herein designated VGAM GENE, encodes a VGAM3055 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3055 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3055 precursor RNA is designated SEQ ID:2565, and is provided hereinbelow with reference to the sequence listing part.

[42703] VGAM3055 precursor RNA, herein designated VGAM PRE-

CURSOR RNA, folds onto itself, forming VGAM3055 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42704] An enzyme complex designated DICER COMPLEX, dices the VGAM3055 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3055 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3055 RNA is designated SEQ ID:5635, and is provided hereinbelow with reference to the sequence listing part.

[42705] VGAM3055 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger

RNA, VGAM3055 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3055 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42706] VGAM3055 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3055 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3055 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3055 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3055 host

target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42707] The complementary binding of VGAM3055 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3055 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3055 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3055 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42708] It is appreciated that VGAM3055 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3055 host target genes. The mRNA of each one of this plurality of VGAM3055 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3055 RNA, herein designated VGAM RNA, and which when bound by VGAM3055 RNA, herein

designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3055 host target proteins.

[42709] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3055 gene, herein designated VGAM GENE, on one or more VGAM3055 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42710] It is yet further appreciated that a function of VGAM3055 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3055 include diagnosis, prevention and

treatment of viral infection by Bovine herpesvirus 1. Specific functions, and accordingly utilities, of VGAM3055 correlate with, and may be deduced from, the identity of the host target genes which VGAM3055 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42711] Nucleotide sequences of the VGAM3055 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3055 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3055 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3055 are further described hereinbelow with reference to Table 1.

[42712] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3055 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42713] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3056 (VGAM3056) viral gene, which modulates ex-

pression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42714] VGAM3056 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3056 was detected is described hereinabove with reference to Figs. 2-8.

[42715] VGAM3056 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Sheeppox virus. VGAM3056 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42716] VGAM3056 gene, herein designated VGAM GENE, encodes a VGAM3056 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3056 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3056 precursor RNA is designated SEQ ID:2566, and is provided hereinbelow with reference to the sequence listing part.

[42717] VGAM3056 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3056 folded

precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42718] An enzyme complex designated DICER COMPLEX, dices the VGAM3056 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3056 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3056 RNA is designated SEQ ID:5636, and is provided hereinbelow with reference to the sequence listing part.

[42719] VGAM3056 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3056 host target RNA, herein designated

VGAM HOST TARGET RNA. VGAM3056 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42720] VGAM3056 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3056 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3056 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3056 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3056 host target RNA, herein designated VGAM HOST TARGET RNA.

It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42721] The complementary binding of VGAM3056 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3056 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3056 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3056 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42722] It is appreciated that VGAM3056 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3056 host target genes. The mRNA of each one of this plurality of VGAM3056 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3056 RNA, herein designated VGAM RNA, and which when bound by VGAM3056 RNA, herein designated VGAM RNA, causes inhibition of translation of

respective one or more VGAM3056 host target proteins.

[42723] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3056 gene, herein designated VGAM GENE, on one or more VGAM3056 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42724] It is yet further appreciated that a function of VGAM3056 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3056 include diagnosis, prevention and treatment of viral infection by Sheeppox virus. Specific

functions, and accordingly utilities, of VGAM3056 correlate with, and may be deduced from, the identity of the host target genes which VGAM3056 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42725] Nucleotide sequences of the VGAM3056 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3056 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3056 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3056 are further described hereinbelow with reference to Table 1.

[42726] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3056 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42727] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3057 (VGAM3057) viral gene, which modulates expression of respective host target genes thereof, the func-

tion and utility of which host target genes is known in the art.

[42728] VGAM3057 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3057 was detected is described hereinabove with reference to Figs. 2-8.

[42729] VGAM3057 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Rat cytomegalovirus. VGAM3057 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42730] VGAM3057 gene, herein designated VGAM GENE, encodes a VGAM3057 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3057 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3057 precursor RNA is designated SEQ ID:2560, and is provided hereinbelow with reference to the sequence listing part.

[42731] VGAM3057 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3057 folded precursor RNA, herein designated VGAM FOLDED PRECUR-

SOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42732] An enzyme complex designated DICER COMPLEX, dices the VGAM3057 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3057 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3057 RNA is designated SEQ ID:5630, and is provided hereinbelow with reference to the sequence listing part.

[42733] VGAM3057 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3057 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3057 host target RNA,

herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42734] VGAM3057 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3057 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3057 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3057 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3057 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host tar-

get binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42735] The complementary binding of VGAM3057 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3057 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3057 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3057 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42736] It is appreciated that VGAM3057 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3057 host target genes. The mRNA of each one of this plurality of VGAM3057 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3057 RNA, herein designated VGAM RNA, and which when bound by VGAM3057 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3057 host target proteins.

[42737] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3057 gene, herein designated VGAM GENE, on one or more VGAM3057 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42738] It is yet further appreciated that a function of VGAM3057 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3057 include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGAM3057

correlate with, and may be deduced from, the identity of the host target genes which VGAM3057 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42739] Nucleotide sequences of the VGAM3057 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3057 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3057 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3057 are further described hereinbelow with reference to Table 1.

[42740] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3057 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42741] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3058 (VGAM3058) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the

art.

[42742] VGAM3058 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3058 was detected is described hereinabove with reference to Figs. 2-8.

[42743] VGAM3058 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Meleagrid herpesvirus 1. VGAM3058 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42744] VGAM3058 gene, herein designated VGAM GENE, encodes a VGAM3058 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3058 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3058 precursor RNA is designated SEQ ID:2561, and is provided hereinbelow with reference to the sequence listing part.

[42745] VGAM3058 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3058 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure.

As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42746] An enzyme complex designated DICER COMPLEX, dices the VGAM3058 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3058 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3058 RNA is designated SEQ ID:5631, and is provided hereinbelow with reference to the sequence listing part.

[42747] VGAM3058 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3058 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3058 host target RNA, herein designated VGAM HOST TARGET RNA, comprises

three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42748] VGAM3058 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3058 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3058 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3058 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3058 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an

example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42749] The complementary binding of VGAM3058 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3058 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3058 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3058 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42750] It is appreciated that VGAM3058 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3058 host target genes. The mRNA of each one of this plurality of VGAM3058 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3058 RNA, herein designated VGAM RNA, and which when bound by VGAM3058 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3058 host target proteins.

[42751] It is further appreciated by one skilled in the art that the

mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3058 gene, herein designated VGAM GENE, on one or more VGAM3058 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42752] It is yet further appreciated that a function of VGAM3058 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3058 include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGAM3058 correlate with, and may be deduced from, the identity of

the host target genes which VGAM3058 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42753] Nucleotide sequences of the VGAM3058 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3058 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3058 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3058 are further described hereinbelow with reference to Table 1.

[42754] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3058 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42755] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3059 (VGAM3059) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42756] VGAM3059 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3059 was detected is described hereinabove with reference to Figs. 2-8.

[42757] VGAM3059 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Melanoplus sanguinipes entomopoxvirus. VGAM3059 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42758] VGAM3059 gene, herein designated VGAM GENE, encodes a VGAM3059 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3059 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3059 precursor RNA is designated SEQ ID:2562, and is provided hereinbelow with reference to the sequence listing part.

[42759] VGAM3059 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3059 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typi-

cal of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42760] An enzyme complex designated DICER COMPLEX, dices the VGAM3059 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3059 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3059 RNA is designated SEQ ID:5632, and is provided hereinbelow with reference to the sequence listing part.

[42761] VGAM3059 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3059 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3059 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding

gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42762] VGAM3059 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3059 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3059 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3059 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3059 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be lo-

cated in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42763] The complementary binding of VGAM3059 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3059 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3059 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3059 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42764] It is appreciated that VGAM3059 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3059 host target genes. The mRNA of each one of this plurality of VGAM3059 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3059 RNA, herein designated VGAM RNA, and which when bound by VGAM3059 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3059 host target proteins.

[42765] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with

specific reference to translational inhibition exerted by VGAM3059 gene, herein designated VGAM GENE, on one or more VGAM3059 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42766] It is yet further appreciated that a function of VGAM3059 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3059 include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGAM3059 correlate with, and may be deduced from, the identity of the host target genes which VGAM3059

binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42767] Nucleotide sequences of the VGAM3059 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3059 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3059 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3059 are further described hereinbelow with reference to Table 1.

[42768] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3059 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42769] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3060 (VGAM3060) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42770] VGAM3060 is a novel bioinformatically detected regula-

tory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3060 was detected is described hereinabove with reference to Figs. 2-8.

[42771] VGAM3060 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Swinepox virus. VGAM3060 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42772] VGAM3060 gene, herein designated VGAM GENE, encodes a VGAM3060 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3060 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3060 precursor RNA is designated SEQ ID:2570, and is provided hereinbelow with reference to the sequence listing part.

[42773] VGAM3060 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3060 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the

fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42774] An enzyme complex designated DICER COMPLEX, dices the VGAM3060 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3060 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3060 RNA is designated SEQ ID:5640, and is provided hereinbelow with reference to the sequence listing part.

[42775] VGAM3060 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3060 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3060 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and

a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42776] VGAM3060 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3060 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3060 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3060 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3060 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both

3UTR and 5UTR regions.

[42777] The complementary binding of VGAM3060 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3060 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3060 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3060 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42778] It is appreciated that VGAM3060 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3060 host target genes. The mRNA of each one of this plurality of VGAM3060 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3060 RNA, herein designated VGAM RNA, and which when bound by VGAM3060 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3060 host target proteins.

[42779] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by

VGAM3060 gene, herein designated VGAM GENE, on one or more VGAM3060 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42780] It is yet further appreciated that a function of VGAM3060 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3060 include diagnosis, prevention and treatment of viral infection by Swinepox virus. Specific functions, and accordingly utilities, of VGAM3060 correlate with, and may be deduced from, the identity of the host target genes which VGAM3060 binds and inhibits, and the function of these host target genes, as elaborated

hereinbelow.

[42781] Nucleotide sequences of the VGAM3060 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3060 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3060 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3060 are further described hereinbelow with reference to Table 1.

[42782] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3060 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42783] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3061 (VGAM3061) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42784] VGAM3061 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene.

The method by which VGAM3061 was detected is described hereinabove with reference to Figs. 2-8.

[42785] VGAM3061 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Rice ragged stunt virus. VGAM3061 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42786] VGAM3061 gene, herein designated VGAM GENE, encodes a VGAM3061 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3061 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3061 precursor RNA is designated SEQ ID:2575, and is provided hereinbelow with reference to the sequence listing part.

[42787] VGAM3061 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3061 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the

RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42788] An enzyme complex designated DICER COMPLEX, dices the VGAM3061 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3061 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3061 RNA is designated SEQ ID:5645, and is provided hereinbelow with reference to the sequence listing part.

[42789] VGAM3061 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3061 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3061 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN COD-

ING and 3UTR respectively.

[42790] VGAM3061 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3061 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3061 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3061 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3061 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42791] The complementary binding of VGAM3061 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3061 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3061 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3061 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42792] It is appreciated that VGAM3061 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3061 host target genes. The mRNA of each one of this plurality of VGAM3061 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3061 RNA, herein designated VGAM RNA, and which when bound by VGAM3061 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3061 host target proteins.

[42793] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3061 gene, herein designated VGAM GENE, on one

or more VGAM3061 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42794] It is yet further appreciated that a function of VGAM3061 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3061 include diagnosis, prevention and treatment of viral infection by Rice ragged stunt virus. Specific functions, and accordingly utilities, of VGAM3061 correlate with, and may be deduced from, the identity of the host target genes which VGAM3061 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42795] Nucleotide sequences of the VGAM3061 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3061 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3061 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3061 are further described hereinbelow with reference to Table 1.

[42796] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3061 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42797] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3062 (VGAM3062) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42798] VGAM3062 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3062 was detected is de-

scribed hereinabove with reference to Figs. 2-8.

[42799] VGAM3062 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Bovine herpesvirus 1. VGAM3062 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42800] VGAM3062 gene, herein designated VGAM GENE, encodes a VGAM3062 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3062 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3062 precursor RNA is designated SEQ ID:2576, and is provided hereinbelow with reference to the sequence listing part.

[42801] VGAM3062 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3062 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial

inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42802] An enzyme complex designated DICER COMPLEX, dices the VGAM3062 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3062 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide sequence of VGAM3062 RNA is designated SEQ ID:5646, and is provided hereinbelow with reference to the sequence listing part.

[42803] VGAM3062 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3062 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3062 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42804] VGAM3062 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3062 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3062 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3062 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3062 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42805] The complementary binding of VGAM3062 RNA, herein

designated VGAM RNA, to host target binding sites on VGAM3062 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3062 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3062 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42806] It is appreciated that VGAM3062 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3062 host target genes. The mRNA of each one of this plurality of VGAM3062 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3062 RNA, herein designated VGAM RNA, and which when bound by VGAM3062 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3062 host target proteins.

[42807] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3062 gene, herein designated VGAM GENE, on one or more VGAM3062 host target gene, herein designated

VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42808] It is yet further appreciated that a function of VGAM3062 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3062 include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 1. Specific functions, and accordingly utilities, of VGAM3062 correlate with, and may be deduced from, the identity of the host target genes which VGAM3062 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42809] Nucleotide sequences of the VGAM3062 precursor RNA,

herein designated VGAM PRECURSOR RNA, and of the diced VGAM3062 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3062 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3062 are further described hereinbelow with reference to Table 1.

[42810] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3062 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42811] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3063 (VGAM3063) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42812] VGAM3063 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3063 was detected is described hereinabove with reference to Figs. 2-8.

[42813] VGAM3063 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Paramecium bursaria Chlorella virus 1. VGAM3063 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42814] VGAM3063 gene, herein designated VGAM GENE, encodes a VGAM3063 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3063 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3063 precursor RNA is designated SEQ ID:2577, and is provided hereinbelow with reference to the sequence listing part.

[42815] VGAM3063 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3063 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of

the second half thereof.

[42816] An enzyme complex designated DICER COMPLEX, dices the VGAM3063 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3063 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3063 RNA is designated SEQ ID:5647, and is provided hereinbelow with reference to the sequence listing part.

[42817] VGAM3063 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3063 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3063 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42818] VGAM3063 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3063 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3063 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3063 RNA, herein designated

VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3063 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42819] The complementary binding of VGAM3063 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3063 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3063 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3063 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42820] It is appreciated that VGAM3063 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3063 host target genes. The mRNA of each one of this plurality of VGAM3063 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly com-

plementary to VGAM3063 RNA, herein designated VGAM RNA, and which when bound by VGAM3063 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3063 host target proteins.

[42821] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3063 gene, herein designated VGAM GENE, on one or more VGAM3063 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42822] It is yet further appreciated that a function of VGAM3063 is inhibition of expression of host target genes, as part of

a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3063 include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGAM3063 correlate with, and may be deduced from, the identity of the host target genes which VGAM3063 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42823] Nucleotide sequences of the VGAM3063 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3063 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3063 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3063 are further described hereinbelow with reference to Table 1.

[42824] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3063 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42825] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present

invention, referred to here as Viral Genomic Address Messenger 3064 (VGAM3064) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42826] VGAM3064 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3064 was detected is described hereinabove with reference to Figs. 2-8.

[42827] VGAM3064 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Human herpesvirus 6B. VGAM3064 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42828] VGAM3064 gene, herein designated VGAM GENE, encodes a VGAM3064 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3064 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3064 precursor RNA is designated SEQ ID:2567, and is provided hereinbelow with reference to the sequence listing part.

[42829] VGAM3064 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3064 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42830] An enzyme complex designated DICER COMPLEX, dices the VGAM3064 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3064 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3064 RNA is designated SEQ ID:5637, and is provided hereinbelow with reference to the sequence listing part.

[42831] VGAM3064 host target gene, herein designated VGAM

HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3064 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3064 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42832] VGAM3064 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3064 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3064 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3064 RNA, herein designated VGAM RNA, may have a different number of host target

binding sites in untranslated regions of a VGAM3064 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42833] The complementary binding of VGAM3064 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3064 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3064 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3064 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42834] It is appreciated that VGAM3064 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3064 host target genes. The mRNA of each one of this plurality of VGAM3064 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3064 RNA, herein designated VGAM

RNA, and which when bound by VGAM3064 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3064 host target proteins.

[42835] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3064 gene, herein designated VGAM GENE, on one or more VGAM3064 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42836] It is yet further appreciated that a function of VGAM3064 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly,

utilities of VGAM3064 include diagnosis, prevention and treatment of viral infection by Human herpesvirus 6B. Specific functions, and accordingly utilities, of VGAM3064 correlate with, and may be deduced from, the identity of the host target genes which VGAM3064 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42837] Nucleotide sequences of the VGAM3064 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3064 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3064 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3064 are further described hereinbelow with reference to Table 1.

[42838] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3064 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42839] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Mes-

senger 3065 (VGAM3065) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42840] VGAM3065 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3065 was detected is described hereinabove with reference to Figs. 2-8.

[42841] VGAM3065 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Chimpanzee cytomegalovirus. VGAM3065 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42842] VGAM3065 gene, herein designated VGAM GENE, encodes a VGAM3065 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3065 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3065 precursor RNA is designated SEQ ID:2580, and is provided hereinbelow with reference to the sequence listing part.

[42843] VGAM3065 precursor RNA, herein designated VGAM PRE-

CURSOR RNA, folds onto itself, forming VGAM3065 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42844] An enzyme complex designated DICER COMPLEX, dices the VGAM3065 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3065 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3065 RNA is designated SEQ ID:5650, and is provided hereinbelow with reference to the sequence listing part.

[42845] VGAM3065 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger

RNA, VGAM3065 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3065 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42846] VGAM3065 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3065 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3065 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3065 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3065 host

target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42847] The complementary binding of VGAM3065 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3065 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3065 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3065 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42848] It is appreciated that VGAM3065 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3065 host target genes. The mRNA of each one of this plurality of VGAM3065 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3065 RNA, herein designated VGAM RNA, and which when bound by VGAM3065 RNA, herein

designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3065 host target proteins.

[42849] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3065 gene, herein designated VGAM GENE, on one or more VGAM3065 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42850] It is yet further appreciated that a function of VGAM3065 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3065 include diagnosis, prevention and

treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGAM3065 correlate with, and may be deduced from, the identity of the host target genes which VGAM3065 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42851] Nucleotide sequences of the VGAM3065 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3065 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3065 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3065 are further described hereinbelow with reference to Table 1.

[42852] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3065 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42853] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3066 (VGAM3066) viral gene, which modulates ex-

pression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42854] VGAM3066 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3066 was detected is described hereinabove with reference to Figs. 2-8.

[42855] VGAM3066 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Macaca mulatta rhadinovirus. VGAM3066 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42856] VGAM3066 gene, herein designated VGAM GENE, encodes a VGAM3066 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3066 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3066 precursor RNA is designated SEQ ID:2568, and is provided hereinbelow with reference to the sequence listing part.

[42857] VGAM3066 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3066 folded

precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42858] An enzyme complex designated DICER COMPLEX, dices the VGAM3066 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3066 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3066 RNA is designated SEQ ID:5638, and is provided hereinbelow with reference to the sequence listing part.

[42859] VGAM3066 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3066 host target RNA, herein designated

VGAM HOST TARGET RNA. VGAM3066 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42860] VGAM3066 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3066 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3066 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3066 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3066 host target RNA, herein designated VGAM HOST TARGET RNA.

It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42861] The complementary binding of VGAM3066 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3066 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3066 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3066 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42862] It is appreciated that VGAM3066 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3066 host target genes. The mRNA of each one of this plurality of VGAM3066 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3066 RNA, herein designated VGAM RNA, and which when bound by VGAM3066 RNA, herein designated VGAM RNA, causes inhibition of translation of

respective one or more VGAM3066 host target proteins.

[42863] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3066 gene, herein designated VGAM GENE, on one or more VGAM3066 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42864] It is yet further appreciated that a function of VGAM3066 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3066 include diagnosis, prevention and treatment of viral infection by Macaca mulatta rhadi-

novirus. Specific functions, and accordingly utilities, of VGAM3066 correlate with, and may be deduced from, the identity of the host target genes which VGAM3066 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42865] Nucleotide sequences of the VGAM3066 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3066 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3066 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3066 are further described hereinbelow with reference to Table 1.

[42866] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3066 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42867] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3067 (VGAM3067) viral gene, which modulates expression of respective host target genes thereof, the func-

tion and utility of which host target genes is known in the art.

[42868] VGAM3067 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3067 was detected is described hereinabove with reference to Figs. 2-8.

[42869] VGAM3067 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Meleagrid herpesvirus 1. VGAM3067 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42870] VGAM3067 gene, herein designated VGAM GENE, encodes a VGAM3067 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3067 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3067 precursor RNA is designated SEQ ID:2569, and is provided hereinbelow with reference to the sequence listing part.

[42871] VGAM3067 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3067 folded precursor RNA, herein designated VGAM FOLDED PRECUR-

SOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42872] An enzyme complex designated DICER COMPLEX, dices the VGAM3067 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3067 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3067 RNA is designated SEQ ID:5639, and is provided hereinbelow with reference to the sequence listing part.

[42873] VGAM3067 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3067 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3067 host target RNA,

herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42874] VGAM3067 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3067 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3067 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3067 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3067 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host tar-

get binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42875] The complementary binding of VGAM3067 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3067 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3067 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3067 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42876] It is appreciated that VGAM3067 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3067 host target genes. The mRNA of each one of this plurality of VGAM3067 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3067 RNA, herein designated VGAM RNA, and which when bound by VGAM3067 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3067 host target proteins.

[42877] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3067 gene, herein designated VGAM GENE, on one or more VGAM3067 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42878] It is yet further appreciated that a function of VGAM3067 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3067 include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGAM3067

correlate with, and may be deduced from, the identity of the host target genes which VGAM3067 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42879] Nucleotide sequences of the VGAM3067 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3067 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3067 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3067 are further described hereinbelow with reference to Table 1.

[42880] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3067 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42881] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3068 (VGAM3068) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the

art.

[42882] VGAM3068 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3068 was detected is described hereinabove with reference to Figs. 2-8.

[42883] VGAM3068 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Molluscum contagiosum virus. VGAM3068 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42884] VGAM3068 gene, herein designated VGAM GENE, encodes a VGAM3068 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3068 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3068 precursor RNA is designated SEQ ID:2581, and is provided hereinbelow with reference to the sequence listing part.

[42885] VGAM3068 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3068 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure.

As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42886] An enzyme complex designated DICER COMPLEX, dices the VGAM3068 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3068 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3068 RNA is designated SEQ ID:5651, and is provided hereinbelow with reference to the sequence listing part.

[42887] VGAM3068 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3068 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3068 host target RNA, herein designated VGAM HOST TARGET RNA, comprises

three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42888] VGAM3068 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3068 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3068 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3068 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3068 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an

example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42889] The complementary binding of VGAM3068 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3068 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3068 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3068 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42890] It is appreciated that VGAM3068 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3068 host target genes. The mRNA of each one of this plurality of VGAM3068 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3068 RNA, herein designated VGAM RNA, and which when bound by VGAM3068 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3068 host target proteins.

[42891] It is further appreciated by one skilled in the art that the

mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3068 gene, herein designated VGAM GENE, on one or more VGAM3068 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42892] It is yet further appreciated that a function of VGAM3068 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3068 include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGAM3068 correlate with, and may be deduced from, the

identity of the host target genes which VGAM3068 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42893] Nucleotide sequences of the VGAM3068 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3068 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3068 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3068 are further described hereinbelow with reference to Table 1.

[42894] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3068 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42895] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3069 (VGAM3069) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42896] VGAM3069 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3069 was detected is described hereinabove with reference to Figs. 2-8.

[42897] VGAM3069 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Molluscum contagiosum virus. VGAM3069 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42898] VGAM3069 gene, herein designated VGAM GENE, encodes a VGAM3069 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3069 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3069 precursor RNA is designated SEQ ID:2571, and is provided hereinbelow with reference to the sequence listing part.

[42899] VGAM3069 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3069 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typi-

cal of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42900] An enzyme complex designated DICER COMPLEX, dices the VGAM3069 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3069 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3069 RNA is designated SEQ ID:5641, and is provided hereinbelow with reference to the sequence listing part.

[42901] VGAM3069 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3069 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3069 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding

gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42902] VGAM3069 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3069 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3069 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3069 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3069 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be lo-

cated in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42903] The complementary binding of VGAM3069 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3069 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3069 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3069 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42904] It is appreciated that VGAM3069 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3069 host target genes. The mRNA of each one of this plurality of VGAM3069 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3069 RNA, herein designated VGAM RNA, and which when bound by VGAM3069 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3069 host target proteins.

[42905] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with

specific reference to translational inhibition exerted by VGAM3069 gene, herein designated VGAM GENE, on one or more VGAM3069 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42906] It is yet further appreciated that a function of VGAM3069 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3069 include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGAM3069 correlate with, and may be deduced from, the identity of the host target genes which VGAM3069 binds

and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42907] Nucleotide sequences of the VGAM3069 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3069 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3069 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3069 are further described hereinbelow with reference to Table 1.

[42908] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3069 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42909] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3070 (VGAM3070) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42910] VGAM3070 is a novel bioinformatically detected regula-

tory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3070 was detected is described hereinabove with reference to Figs. 2-8.

[42911] VGAM3070 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Equine herpesvirus 4. VGAM3070 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42912] VGAM3070 gene, herein designated VGAM GENE, encodes a VGAM3070 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3070 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3070 precursor RNA is designated SEQ ID:2572, and is provided hereinbelow with reference to the sequence listing part.

[42913] VGAM3070 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3070 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the

fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42914] An enzyme complex designated DICER COMPLEX, dices the VGAM3070 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3070 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3070 RNA is designated SEQ ID:5642, and is provided hereinbelow with reference to the sequence listing part.

[42915] VGAM3070 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3070 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3070 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and

a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42916] VGAM3070 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3070 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3070 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3070 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3070 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both

3UTR and 5UTR regions.

[42917] The complementary binding of VGAM3070 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3070 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3070 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3070 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42918] It is appreciated that VGAM3070 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3070 host target genes. The mRNA of each one of this plurality of VGAM3070 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3070 RNA, herein designated VGAM RNA, and which when bound by VGAM3070 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3070 host target proteins.

[42919] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by

VGAM3070 gene, herein designated VGAM GENE, on one or more VGAM3070 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42920] It is yet further appreciated that a function of VGAM3070 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3070 include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 4. Specific functions, and accordingly utilities, of VGAM3070 correlate with, and may be deduced from, the identity of the host target genes which VGAM3070 binds and inhibits, and the function of these host target genes, as

elaborated hereinbelow.

[42921] Nucleotide sequences of the VGAM3070 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3070 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3070 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3070 are further described hereinbelow with reference to Table 1.

[42922] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3070 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42923] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3071 (VGAM3071) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42924] VGAM3071 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene.

The method by which VGAM3071 was detected is described hereinabove with reference to Figs. 2-8.

[42925] VGAM3071 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Lettuce infectious yellows virus. VGAM3071 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42926] VGAM3071 gene, herein designated VGAM GENE, encodes a VGAM3071 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3071 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3071 precursor RNA is designated SEQ ID:2584, and is provided hereinbelow with reference to the sequence listing part.

[42927] VGAM3071 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3071 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the

RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42928] An enzyme complex designated DICER COMPLEX, dices the VGAM3071 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3071 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3071 RNA is designated SEQ ID:5654, and is provided hereinbelow with reference to the sequence listing part.

[42929] VGAM3071 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3071 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3071 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN COD-

ING and 3UTR respectively.

[42930] VGAM3071 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3071 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3071 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3071 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3071 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42931] The complementary binding of VGAM3071 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3071 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3071 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3071 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42932] It is appreciated that VGAM3071 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3071 host target genes. The mRNA of each one of this plurality of VGAM3071 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3071 RNA, herein designated VGAM RNA, and which when bound by VGAM3071 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3071 host target proteins.

[42933] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3071 gene, herein designated VGAM GENE, on one

or more VGAM3071 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42934] It is yet further appreciated that a function of VGAM3071 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3071 include diagnosis, prevention and treatment of viral infection by Lettuce infectious yellows virus. Specific functions, and accordingly utilities, of VGAM3071 correlate with, and may be deduced from, the identity of the host target genes which VGAM3071 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42935] Nucleotide sequences of the VGAM3071 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3071 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3071 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3071 are further described hereinbelow with reference to Table 1.

[42936] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3071 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42937] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3072 (VGAM3072) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42938] VGAM3072 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3072 was detected is de-

scribed hereinabove with reference to Figs. 2-8.

[42939] VGAM3072 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Paramecium bursaria Chlorella virus 1. VGAM3072 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42940] VGAM3072 gene, herein designated VGAM GENE, encodes a VGAM3072 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3072 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3072 precursor RNA is designated SEQ ID:2573, and is provided hereinbelow with reference to the sequence listing part.

[42941] VGAM3072 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3072 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial

inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42942] An enzyme complex designated DICER COMPLEX, dices the VGAM3072 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3072 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3072 RNA is designated SEQ ID:5643, and is provided hereinbelow with reference to the sequence listing part.

[42943] VGAM3072 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3072 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3072 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42944] VGAM3072 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3072 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3072 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3072 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3072 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42945] The complementary binding of VGAM3072 RNA, herein

designated VGAM RNA, to host target binding sites on VGAM3072 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3072 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3072 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42946] It is appreciated that VGAM3072 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3072 host target genes. The mRNA of each one of this plurality of VGAM3072 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3072 RNA, herein designated VGAM RNA, and which when bound by VGAM3072 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3072 host target proteins.

[42947] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3072 gene, herein designated VGAM GENE, on one or more VGAM3072 host target gene, herein designated

VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42948] It is yet further appreciated that a function of VGAM3072 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3072 include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGAM3072 correlate with, and may be deduced from, the identity of the host target genes which VGAM3072 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42949] Nucleotide sequences of the VGAM3072 precursor RNA,

herein designated VGAM PRECURSOR RNA, and of the diced VGAM3072 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3072 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3072 are further described hereinbelow with reference to Table 1.

[42950] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3072 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42951] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3073 (VGAM3073) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42952] VGAM3073 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3073 was detected is described hereinabove with reference to Figs. 2-8.

[42953] VGAM3073 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Human herpesvirus 6. VGAM3073 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42954] VGAM3073 gene, herein designated VGAM GENE, encodes a VGAM3073 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3073 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3073 precursor RNA is designated SEQ ID:2574, and is provided hereinbelow with reference to the sequence listing part.

[42955] VGAM3073 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3073 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of

the second half thereof.

[42956] An enzyme complex designated DICER COMPLEX, dices the VGAM3073 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3073 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3073 RNA is designated SEQ ID:5644, and is provided hereinbelow with reference to the sequence listing part.

[42957] VGAM3073 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3073 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3073 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42958] VGAM3073 RNA, herein designated VGAM RNA, binds

complementarily to one or more host target binding sites located in untranslated regions of VGAM3073 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3073 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3073 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3073 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42959] The complementary binding of VGAM3073 RNA, herein designated VGAM RNA, to host target binding sites on

VGAM3073 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3073 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3073 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42960] It is appreciated that VGAM3073 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3073 host target genes. The mRNA of each one of this plurality of VGAM3073 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3073 RNA, herein designated VGAM RNA, and which when bound by VGAM3073 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3073 host target proteins.

[42961] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3073 gene, herein designated VGAM GENE, on one or more VGAM3073 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other

known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42962] It is yet further appreciated that a function of VGAM3073 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3073 include diagnosis, prevention and treatment of viral infection by Human herpesvirus 6. Specific functions, and accordingly utilities, of VGAM3073 correlate with, and may be deduced from, the identity of the host target genes which VGAM3073 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42963] Nucleotide sequences of the VGAM3073 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the

diced VGAM3073 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3073 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3073 are further described hereinbelow with reference to Table 1.

[42964] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3073 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42965] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3074 (VGAM3074) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42966] VGAM3074 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3074 was detected is described hereinabove with reference to Figs. 2-8.

[42967] VGAM3074 gene, herein designated VGAM GENE, is a viral

gene contained in the genome of Molluscum contagiosum virus. VGAM3074 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42968] VGAM3074 gene, herein designated VGAM GENE, encodes a VGAM3074 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3074 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3074 precursor RNA is designated SEQ ID:2588, and is provided hereinbelow with reference to the sequence listing part.

[42969] VGAM3074 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3074 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42970] An enzyme complex designated DICER COMPLEX, dices the VGAM3074 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3074 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3074 RNA is designated SEQ ID:5658, and is provided hereinbelow with reference to the sequence listing part.

[42971] VGAM3074 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3074 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3074 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42972] VGAM3074 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites

located in untranslated regions of VGAM3074 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3074 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3074 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3074 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42973] The complementary binding of VGAM3074 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3074 host target RNA, herein designated VGAM

HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3074 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3074 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42974] It is appreciated that VGAM3074 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3074 host target genes. The mRNA of each one of this plurality of VGAM3074 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3074 RNA, herein designated VGAM RNA, and which when bound by VGAM3074 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3074 host target proteins.

[42975] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3074 gene, herein designated VGAM GENE, on one or more VGAM3074 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove

with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42976] It is yet further appreciated that a function of VGAM3074 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3074 include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGAM3074 correlate with, and may be deduced from, the identity of the host target genes which VGAM3074 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42977] Nucleotide sequences of the VGAM3074 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3074 RNA, herein designated VGAM RNA, and

a schematic representation of the secondary folding of VGAM3074 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3074 are further described hereinbelow with reference to Table 1.

[42978] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3074 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42979] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3075 (VGAM3075) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42980] VGAM3075 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3075 was detected is described hereinabove with reference to Figs. 2-8.

[42981] VGAM3075 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Ovine adenovirus 7.

VGAM3075 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42982] VGAM3075 gene, herein designated VGAM GENE, encodes a VGAM3075 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3075 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3075 precursor RNA is designated SEQ ID:2578, and is provided hereinbelow with reference to the sequence listing part.

[42983] VGAM3075 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3075 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42984] An enzyme complex designated DICER COMPLEX, dices

the VGAM3075 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3075 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide sequence of VGAM3075 RNA is designated SEQ ID:5648, and is provided hereinbelow with reference to the sequence listing part.

[42985] VGAM3075 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3075 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3075 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[42986] VGAM3075 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3075 host target

RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3075 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3075 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3075 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[42987] The complementary binding of VGAM3075 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3075 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE

II and BINDING SITE III, inhibits translation of VGAM3075 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3075 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[42988] It is appreciated that VGAM3075 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3075 host target genes. The mRNA of each one of this plurality of VGAM3075 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3075 RNA, herein designated VGAM RNA, and which when bound by VGAM3075 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3075 host target proteins.

[42989] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3075 gene, herein designated VGAM GENE, on one or more VGAM3075 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a spe-

cific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[42990] It is yet further appreciated that a function of VGAM3075 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3075 include diagnosis, prevention and treatment of viral infection by Ovine adenovirus 7. Specific functions, and accordingly utilities, of VGAM3075 correlate with, and may be deduced from, the identity of the host target genes which VGAM3075 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[42991] Nucleotide sequences of the VGAM3075 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3075 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of

VGAM3075 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3075 are further described hereinbelow with reference to Table 1.

[42992] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3075 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[42993] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3076 (VGAM3076) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[42994] VGAM3076 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3076 was detected is described hereinabove with reference to Figs. 2-8.

[42995] VGAM3076 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Murray Valley encephalitis virus. VGAM3076 host target gene, herein designated

VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[42996] VGAM3076 gene, herein designated VGAM GENE, encodes a VGAM3076 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3076 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3076 precursor RNA is designated SEQ ID:2589, and is provided hereinbelow with reference to the sequence listing part.

[42997] VGAM3076 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3076 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[42998] An enzyme complex designated DICER COMPLEX, dices the VGAM3076 folded precursor RNA, herein designated

VGAM FOLDED PRECURSOR RNA, into VGAM3076 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3076 RNA is designated SEQ ID:5659, and is provided hereinbelow with reference to the sequence listing part.

[42999] VGAM3076 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3076 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3076 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43000] VGAM3076 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3076 host target RNA, herein designated VGAM HOST TARGET RNA. This

complementary binding is due to the fact that the nucleotide sequence of VGAM3076 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3076 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3076 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43001] The complementary binding of VGAM3076 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3076 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3076

host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3076 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[43002] It is appreciated that VGAM3076 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3076 host target genes. The mRNA of each one of this plurality of VGAM3076 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3076 RNA, herein designated VGAM RNA, and which when bound by VGAM3076 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3076 host target proteins.

[43003] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3076 gene, herein designated VGAM GENE, on one or more VGAM3076 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated

only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[43004] It is yet further appreciated that a function of VGAM3076 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3076 include diagnosis, prevention and treatment of viral infection by Murray Valley encephalitis virus. Specific functions, and accordingly utilities, of VGAM3076 correlate with, and may be deduced from, the identity of the host target genes which VGAM3076 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43005] Nucleotide sequences of the VGAM3076 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3076 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3076 folded precursor RNA, herein designated

VGAM FOLDED PRECURSOR RNA, of VGAM3076 are further described hereinbelow with reference to Table 1.

[43006] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3076 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[43007] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3077 (VGAM3077) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[43008] VGAM3077 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3077 was detected is described hereinabove with reference to Figs. 2-8.

[43009] VGAM3077 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Sonchus yellow net virus. VGAM3077 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in

the human genome.

[43010] VGAM3077 gene, herein designated VGAM GENE, encodes a VGAM3077 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3077 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3077 precursor RNA is designated SEQ ID:2579, and is provided hereinbelow with reference to the sequence listing part.

[43011] VGAM3077 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3077 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[43012] An enzyme complex designated DICER COMPLEX, dices the VGAM3077 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3077 RNA,

herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3077 RNA is designated SEQ ID:5649, and is provided hereinbelow with reference to the sequence listing part.

[43013] VGAM3077 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3077 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3077 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43014] VGAM3077 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3077 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nu-

cleotide sequence of VGAM3077 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3077 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3077 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43015] The complementary binding of VGAM3077 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3077 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3077 host target RNA, herein designated VGAM HOST TARGET

RNA, into VGAM3077 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[43016] It is appreciated that VGAM3077 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3077 host target genes. The mRNA of each one of this plurality of VGAM3077 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3077 RNA, herein designated VGAM RNA, and which when bound by VGAM3077 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3077 host target proteins.

[43017] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3077 gene, herein designated VGAM GENE, on one or more VGAM3077 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4

and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[43018] It is yet further appreciated that a function of VGAM3077 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3077 include diagnosis, prevention and treatment of viral infection by Sonchus yellow net virus. Specific functions, and accordingly utilities, of VGAM3077 correlate with, and may be deduced from, the identity of the host target genes which VGAM3077 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43019] Nucleotide sequences of the VGAM3077 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3077 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3077 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3077 are further

described hereinbelow with reference to Table 1.

[43020] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3077 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[43021] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3078 (VGAM3078) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[43022] VGAM3078 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3078 was detected is described hereinabove with reference to Figs. 2-8.

[43023] VGAM3078 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Human herpesvirus 5. VGAM3078 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[43024] VGAM3078 gene, herein designated VGAM GENE, encodes a VGAM3078 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3078 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3078 precursor RNA is designated SEQ ID:2585, and is provided hereinbelow with reference to the sequence listing part.

[43025] VGAM3078 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3078 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[43026] An enzyme complex designated DICER COMPLEX, dices the VGAM3078 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3078 RNA, herein designated VGAM RNA, a single stranded ~22 nt

long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3078 RNA is designated SEQ ID:5655, and is provided hereinbelow with reference to the sequence listing part.

[43027] VGAM3078 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3078 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3078 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43028] VGAM3078 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3078 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3078 RNA, herein designated

VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3078 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3078 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43029] The complementary binding of VGAM3078 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3078 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3078 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3078 host target protein, herein desig-

nated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[43030] It is appreciated that VGAM3078 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3078 host target genes. The mRNA of each one of this plurality of VGAM3078 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3078 RNA, herein designated VGAM RNA, and which when bound by VGAM3078 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3078 host target proteins.

[43031] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3078 gene, herein designated VGAM GENE, on one or more VGAM3078 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are

also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[43032] It is yet further appreciated that a function of VGAM3078 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3078 include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGAM3078 correlate with, and may be deduced from, the identity of the host target genes which VGAM3078 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43033] Nucleotide sequences of the VGAM3078 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3078 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3078 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3078 are further described hereinbelow with reference to Table 1.

[43034] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3078 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[43035] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3079 (VGAM3079) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[43036] VGAM3079 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3079 was detected is described hereinabove with reference to Figs. 2-8.

[43037] VGAM3079 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Vaccinia virus. VGAM3079 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[43038] VGAM3079 gene, herein designated VGAM GENE, encodes

a VGAM3079 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3079 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3079 precursor RNA is designated SEQ ID:2590, and is provided hereinbelow with reference to the sequence listing part.

[43039] VGAM3079 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3079 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[43040] An enzyme complex designated DICER COMPLEX, dices the VGAM3079 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3079 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a

hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3079 RNA is designated SEQ ID:5660, and is provided hereinbelow with reference to the sequence listing part.

[43041] VGAM3079 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3079 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3079 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43042] VGAM3079 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3079 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3079 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed

sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3079 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3079 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43043] The complementary binding of VGAM3079 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3079 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3079 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3079 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target

protein is therefore outlined by a broken line.

[43044] It is appreciated that VGAM3079 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3079 host target genes. The mRNA of each one of this plurality of VGAM3079 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3079 RNA, herein designated VGAM RNA, and which when bound by VGAM3079 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3079 host target proteins.

[43045] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3079 gene, herein designated VGAM GENE, on one or more VGAM3079 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate ex-

pression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[43046] It is yet further appreciated that a function of VGAM3079 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3079 include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGAM3079 correlate with, and may be deduced from, the identity of the host target genes which VGAM3079 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43047] Nucleotide sequences of the VGAM3079 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3079 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3079 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3079 are further described hereinbelow with reference to Table 1.

[43048] Nucleotide sequences of host target binding sites, such as

BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3079 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[43049] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3080 (VGAM3080) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[43050] VGAM3080 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3080 was detected is described hereinabove with reference to Figs. 2-8.

[43051] VGAM3080 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Equine herpesvirus 4. VGAM3080 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[43052] VGAM3080 gene, herein designated VGAM GENE, encodes a VGAM3080 precursor RNA, herein designated VGAM

PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3080 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3080 precursor RNA is designated SEQ ID:2582, and is provided hereinbelow with reference to the sequence listing part.

[43053] VGAM3080 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3080 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[43054] An enzyme complex designated DICER COMPLEX, dices the VGAM3080 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3080 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short

~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 55%) nucleotide sequence of VGAM3080 RNA is designated SEQ ID:5652, and is provided hereinbelow with reference to the sequence listing part.

[43055] VGAM3080 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3080 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3080 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43056] VGAM3080 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3080 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3080 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host

target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3080 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3080 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43057] The complementary binding of VGAM3080 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3080 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3080 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3080 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[43058] It is appreciated that VGAM3080 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3080 host target genes. The mRNA of each one of this plurality of VGAM3080 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3080 RNA, herein designated VGAM RNA, and which when bound by VGAM3080 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3080 host target proteins.

[43059] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3080 gene, herein designated VGAM GENE, on one or more VGAM3080 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, al-

though specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[43060] It is yet further appreciated that a function of VGAM3080 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3080 include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 4. Specific functions, and accordingly utilities, of VGAM3080 correlate with, and may be deduced from, the identity of the host target genes which VGAM3080 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43061] Nucleotide sequences of the VGAM3080 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3080 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3080 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3080 are further described hereinbelow with reference to Table 1.

[43062] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of

Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3080 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[43063] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3081 (VGAM3081) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[43064] VGAM3081 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3081 was detected is described hereinabove with reference to Figs. 2-8.

[43065] VGAM3081 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Rat cytomegalovirus. VGAM3081 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[43066] VGAM3081 gene, herein designated VGAM GENE, encodes a VGAM3081 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and un-

like most ordinary genes, VGAM3081 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3081 precursor RNA is designated SEQ ID:2583, and is provided hereinbelow with reference to the sequence listing part.

[43067] VGAM3081 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3081 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[43068] An enzyme complex designated DICER COMPLEX, dices the VGAM3081 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3081 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex

comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3081 RNA is designated SEQ ID:5653, and is provided hereinbelow with reference to the sequence listing part.

[43069] VGAM3081 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3081 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3081 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43070] VGAM3081 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3081 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3081 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3

such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3081 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3081 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43071] The complementary binding of VGAM3081 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3081 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3081 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3081 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[43072] It is appreciated that VGAM3081 host target gene, herein

designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3081 host target genes. The mRNA of each one of this plurality of VGAM3081 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3081 RNA, herein designated VGAM RNA, and which when bound by VGAM3081 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3081 host target proteins.

[43073] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3081 gene, herein designated VGAM GENE, on one or more VGAM3081 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these

other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[43074] It is yet further appreciated that a function of VGAM3081 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3081 include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGAM3081 correlate with, and may be deduced from, the identity of the host target genes which VGAM3081 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43075] Nucleotide sequences of the VGAM3081 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3081 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3081 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3081 are further described hereinbelow with reference to Table 1.

[43076] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the

complementarity of each of these host target binding sites to VGAM3081 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[43077] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3082 (VGAM3082) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[43078] VGAM3082 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3082 was detected is described hereinabove with reference to Figs. 2-8.

[43079] VGAM3082 gene, herein designated VGAM GENE, is a viral gene contained in the genome of African swine fever virus. VGAM3082 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[43080] VGAM3082 gene, herein designated VGAM GENE, encodes a VGAM3082 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3082 precursor RNA,

herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3082 precursor RNA is designated SEQ ID:1144, and is provided hereinbelow with reference to the sequence listing part.

[43081] VGAM3082 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3082 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[43082] An enzyme complex designated DICER COMPLEX, dices the VGAM3082 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3082 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other

necessary proteins. A probable (over 28%) nucleotide sequence of VGAM3082 RNA is designated SEQ ID:4214, and is provided hereinbelow with reference to the sequence listing part.

[43083] VGAM3082 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3082 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3082 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43084] VGAM3082 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3082 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3082 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I,

BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3082 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3082 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43085] The complementary binding of VGAM3082 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3082 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3082 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3082 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[43086] It is appreciated that VGAM3082 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents

a plurality of VGAM3082 host target genes. The mRNA of each one of this plurality of VGAM3082 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3082 RNA, herein designated VGAM RNA, and which when bound by VGAM3082 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3082 host target proteins.

[43087] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3082 gene, herein designated VGAM GENE, on one or more VGAM3082 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G.,

Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[43088] It is yet further appreciated that a function of VGAM3082 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3082 include diagnosis, prevention and treatment of viral infection by African swine fever virus. Specific functions, and accordingly utilities, of VGAM3082 correlate with, and may be deduced from, the identity of the host target genes which VGAM3082 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43089] Nucleotide sequences of the VGAM3082 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3082 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3082 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3082 are further described hereinbelow with reference to Table 1.

[43090] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites

to VGAM3082 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[43091] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3083 (VGAM3083) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[43092] VGAM3083 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3083 was detected is described hereinabove with reference to Figs. 2-8.

[43093] VGAM3083 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Fowlpox virus. VGAM3083 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[43094] VGAM3083 gene, herein designated VGAM GENE, encodes a VGAM3083 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3083 precursor RNA, herein designated VGAM PRECURSOR RNA, does not en-

code a protein. A nucleotide sequence identical or highly similar to the nucleotide sequence of VGAM3083 precursor RNA is designated SEQ ID:2586, and is provided hereinbelow with reference to the sequence listing part.

[43095] VGAM3083 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3083 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[43096] An enzyme complex designated DICER COMPLEX, dices the VGAM3083 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3083 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 28%) nucleotide se-

quence of VGAM3083 RNA is designated SEQ ID:5656, and is provided hereinbelow with reference to the sequence listing part.

[43097] VGAM3083 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3083 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3083 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43098] VGAM3083 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3083 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3083 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is ap-

preciated that the number of host target binding sites shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3083 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3083 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43099] The complementary binding of VGAM3083 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3083 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3083 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3083 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[43100] It is appreciated that VGAM3083 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3083 host target genes. The mRNA of

each one of this plurality of VGAM3083 host target genes comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3083 RNA, herein designated VGAM RNA, and which when bound by VGAM3083 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3083 host target proteins.

[43101] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3083 gene, herein designated VGAM GENE, on one or more VGAM3083 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science

294,779 (2001)).

[43102] It is yet further appreciated that a function of VGAM3083 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3083 include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGAM3083 correlate with, and may be deduced from, the identity of the host target genes which VGAM3083 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43103] Nucleotide sequences of the VGAM3083 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3083 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3083 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3083 are further described hereinbelow with reference to Table 1.

[43104] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3083 RNA, herein designated VGAM RNA, are de-

scribed hereinbelow with reference to Table 2.

[43105] Fig. 1 further provides a conceptual description of another novel bioinformatically detected viral gene of the present invention, referred to here as Viral Genomic Address Messenger 3084 (VGAM3084) viral gene, which modulates expression of respective host target genes thereof, the function and utility of which host target genes is known in the art.

[43106] VGAM3084 is a novel bioinformatically detected regulatory, non protein coding, viral micro RNA (miRNA) gene. The method by which VGAM3084 was detected is described hereinabove with reference to Figs. 2-8.

[43107] VGAM3084 gene, herein designated VGAM GENE, is a viral gene contained in the genome of Rat cytomegalovirus. VGAM3084 host target gene, herein designated VGAM HOST TARGET GENE, is a human gene contained in the human genome.

[43108] VGAM3084 gene, herein designated VGAM GENE, encodes a VGAM3084 precursor RNA, herein designated VGAM PRECURSOR RNA. Similar to other miRNA genes, and unlike most ordinary genes, VGAM3084 precursor RNA, herein designated VGAM PRECURSOR RNA, does not encode a protein. A nucleotide sequence identical or highly

similar to the nucleotide sequence of VGAM3084 precursor RNA is designated SEQ ID:2587, and is provided hereinbelow with reference to the sequence listing part.

[43109] VGAM3084 precursor RNA, herein designated VGAM PRECURSOR RNA, folds onto itself, forming VGAM3084 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, which has a two-dimensional hairpin structure. As is well known in the art, this hairpin structure, is typical of RNA encoded by miRNA genes, and is due to the fact that the nucleotide sequence of the first half of the RNA encoded by a miRNA gene is an accurate or partial inversed-reversed sequence of the nucleotide sequence of the second half thereof.

[43110] An enzyme complex designated DICER COMPLEX, dices the VGAM3084 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, into VGAM3084 RNA, herein designated VGAM RNA, a single stranded ~22 nt long RNA segment. As is known in the art, dicing of a hairpin structured RNA precursor product into a short ~22nt RNA segment is catalyzed by an enzyme complex comprising an enzyme called Dicer together with other necessary proteins. A probable (over 35%) nucleotide sequence of VGAM3084 RNA is designated SEQ ID:5657, and

is provided hereinbelow with reference to the sequence listing part.

[43111] VGAM3084 host target gene, herein designated VGAM HOST TARGET GENE, encodes a corresponding messenger RNA, VGAM3084 host target RNA, herein designated VGAM HOST TARGET RNA. VGAM3084 host target RNA, herein designated VGAM HOST TARGET RNA, comprises three regions, as is typical of mRNA of a protein coding gene: a 5 untranslated region, a protein coding region and a 3 untranslated region, designated 5UTR, PROTEIN CODING and 3UTR respectively.

[43112] VGAM3084 RNA, herein designated VGAM RNA, binds complementarily to one or more host target binding sites located in untranslated regions of VGAM3084 host target RNA, herein designated VGAM HOST TARGET RNA. This complementary binding is due to the fact that the nucleotide sequence of VGAM3084 RNA, herein designated VGAM RNA, is an accurate or a partial inversed-reversed sequence of the nucleotide sequence of each of the host target binding sites. As an illustration, Fig. 1 shows 3 such host target binding sites, designated BINDING SITE I, BINDING SITE II and BINDING SITE III respectively. It is appreciated that the number of host target binding sites

shown in Fig. 1 is meant as an illustration only, and is not meant to be limiting VGAM3084 RNA, herein designated VGAM RNA, may have a different number of host target binding sites in untranslated regions of a VGAM3084 host target RNA, herein designated VGAM HOST TARGET RNA. It is further appreciated that while Fig. 1 depicts host target binding sites in the 3UTR region, this is meant as an example only these host target binding sites may be located in the 3UTR region, the 5UTR region, or in both 3UTR and 5UTR regions.

[43113] The complementary binding of VGAM3084 RNA, herein designated VGAM RNA, to host target binding sites on VGAM3084 host target RNA, herein designated VGAM HOST TARGET RNA, such as BINDING SITE I, BINDING SITE II and BINDING SITE III, inhibits translation of VGAM3084 host target RNA, herein designated VGAM HOST TARGET RNA, into VGAM3084 host target protein, herein designated VGAM HOST TARGET PROTEIN. VGAM host target protein is therefore outlined by a broken line.

[43114] It is appreciated that VGAM3084 host target gene, herein designated VGAM HOST TARGET GENE, in fact represents a plurality of VGAM3084 host target genes. The mRNA of each one of this plurality of VGAM3084 host target genes

comprises one or more host target binding sites, each having a nucleotide sequence which is at least partly complementary to VGAM3084 RNA, herein designated VGAM RNA, and which when bound by VGAM3084 RNA, herein designated VGAM RNA, causes inhibition of translation of respective one or more VGAM3084 host target proteins.

[43115] It is further appreciated by one skilled in the art that the mode of translational inhibition illustrated by Fig. 1 with specific reference to translational inhibition exerted by VGAM3084 gene, herein designated VGAM GENE, on one or more VGAM3084 host target gene, herein designated VGAM HOST TARGET GENE, is in fact common to other known non-viral miRNA genes. As mentioned hereinabove with reference to the background section, although a specific complementary binding site has been demonstrated only for some of the known miRNA genes (primarily Lin-4 and Let-7), all other recently discovered miRNA genes are also believed by those skilled in the art to modulate expression of other genes by complementary binding, although specific complementary binding sites of these other miRNA genes have not yet been found (Ruvkun G., Perspective: Glimpses of a tiny RNA world, Science 294,779 (2001)).

[43116] It is yet further appreciated that a function of VGAM3084 is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGAM3084 include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGAM3084 correlate with, and may be deduced from, the identity of the host target genes which VGAM3084 binds and inhibits, and the function of these host target genes, as elaborated hereinbelow.

[43117] Nucleotide sequences of the VGAM3084 precursor RNA, herein designated VGAM PRECURSOR RNA, and of the diced VGAM3084 RNA, herein designated VGAM RNA, and a schematic representation of the secondary folding of VGAM3084 folded precursor RNA, herein designated VGAM FOLDED PRECURSOR RNA, of VGAM3084 are further described hereinbelow with reference to Table 1.

[43118] Nucleotide sequences of host target binding sites, such as BINDING SITE-I, BINDING SITE-II and BINDING SITE-III of Fig. 1, found on, and schematic representation of the complementarity of each of these host target binding sites to VGAM3084 RNA, herein designated VGAM RNA, are described hereinbelow with reference to Table 2.

[43119]

[43120] "Reference is now made to Fig. 9, which is a simplified diagram describing each of a plurality of novel bioinformatically detected regulatory viral genes, referred to here as Viral Genomic Record(VGR) viral genes, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43121] VGR GENE is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR GENE was detected is described hereinabove with reference to Figs. 6-15.

[43122] VGR GENE encodes VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43123] VGR PRECURSOR RNA folds spatially, forming VGR FOLDED PRECURSOR RNA. It is appreciated that VGR FOLDED PRECURSOR RNA comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR PRECURSOR RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[43124] VGR FOLDED PRECURSOR RNA is naturally processed by cellular enzymatic activity into a plurality of separate VGAM precursor RNAs, schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43125] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, schematically represented as VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43126] VGAM1 RNA binds complimentarily to a host target binding site located in an untranslated region of VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1 HOST TARGET RNA into VGAM1

HOST TARGET PROTEIN, both of Fig. 1.

[43127] VGAM2 RNA binds complimentarily to a host target binding site located in an untranslated region of VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2 HOST TARGET RNA into VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43128] VGAM3 RNA binds complimentarily to a host target binding site located in an untranslated region of VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM3 HOST TARGET RNA into VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43129] VGAM4 RNA binds complimentarily to a host target binding site located in an untranslated region of VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM4 HOST TARGET RNA into VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43130] VGAM5 RNA binds complimentarily to a host target bind-

ing site located in an untranslated region of VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM5 HOST TARGET RNA into VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43131] VGAM6 RNA binds complimentarily to a host target binding site located in an untranslated region of VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM6 HOST TARGET RNA into VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43132] VGAM7 RNA binds complimentarily to a host target binding site located in an untranslated region of VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM7 HOST TARGET RNA into VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43133] VGAM8 RNA binds complimentarily to a host target binding site located in an untranslated region of VGAM8 HOST TARGET RNA, which host target binding site corresponds

to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM8 HOST TARGET RNA into VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43134] It is appreciated that a function of VGR GENE is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR GENE include diagnosis, prevention and treatment of viral infection by a virus. Specific functions, and accordingly utilities, of VGR GENE correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR GENE, schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM8 HOST TARGET PROTEIN.

[43135] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3087(VGR3087) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43136] VGR3087 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3087 gene was detected is described hereinabove with reference to Figs. 6-15.

[43137] VGR3087 gene encodes VGR3087 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43138] VGR3087 precursor RNA folds spatially, forming VGR3087 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3087 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3087 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43139] VGR3087 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM17 precursor RNA, VGAM18 precursor

RNA, VGAM19 precursor RNA, VGAM20 precursor RNA, VGAM21 precursor RNA, VGAM22 precursor RNA, VGAM23 precursor RNA and VGAM24 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43140] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM17 RNA, VGAM18 RNA, VGAM19 RNA, VGAM20 RNA, VGAM21 RNA, VGAM22 RNA, VGAM23 RNA and VGAM24 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43141] VGAM17 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM17 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM17 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM17 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43142] VGAM18 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM18 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM18 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM18 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43143] VGAM19 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM19 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM19 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM19 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43144] VGAM20 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM20 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM20 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM20 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43145] VGAM21 RNA, herein schematically represented by

VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM21 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM21 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM21 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43146] VGAM22 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM22 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM22 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM22 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43147] VGAM23 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM23 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM23 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM23 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43148] VGAM24 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM24 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM24 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM24 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[43149] It is appreciated that a function of VGR3087 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3087 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3087 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3087 gene: VGAM17 host target protein, VGAM18 host target protein, VGAM19 host target protein, VGAM20 host target protein, VGAM21 host target protein, VGAM22 host target protein, VGAM23 host target protein and VGAM24 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM17, VGAM18, VGAM19, VGAM20, VGAM21, VGAM22, VGAM23 and VGAM24

[43150] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3088(VGR3088) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43151] VGR3088 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3088 gene was detected is described hereinabove with reference to Figs. 6-15.

[43152] VGR3088 gene encodes VGR3088 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43153] VGR3088 precursor RNA folds spatially, forming VGR3088 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3088 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3088 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43154] VGR3088 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM25 precursor RNA, VGAM26 precursor RNA, VGAM27 precursor RNA, VGAM28 precursor RNA, VGAM29 precursor RNA, VGAM30 precursor RNA, VGAM31 precursor RNA and VGAM32 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43155] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM25 RNA, VGAM26 RNA, VGAM27 RNA, VGAM28 RNA, VGAM29 RNA, VGAM30 RNA, VGAM31 RNA and VGAM32 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5

RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43156] VGAM25 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM25 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM25 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM25 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43157] VGAM26 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM26 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM26 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM26 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43158] VGAM27 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM27 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM27 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM27 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43159] VGAM28 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM28 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM28 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM28 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43160] VGAM29 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM29 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM29 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM29 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43161] VGAM30 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM30 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM30 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM30 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43162] VGAM31 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM31 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM31 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM31 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43163] VGAM32 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM32 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM32 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM32 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43164] It is appreciated that a function of VGR3088 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3088 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3088 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3088 gene: VGAM25 host target protein, VGAM26 host target protein, VGAM27 host target protein, VGAM28 host target protein, VGAM29 host target protein, VGAM30 host target protein, VGAM31 host target protein and VGAM32 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN

respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM25, VGAM26, VGAM27, VGAM28, VGAM29, VGAM30, VGAM31 and VGAM32

[43165] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3089(VGR3089) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43166] VGR3089 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3089 gene was detected is described hereinabove with reference to Figs. 6-15.

[43167] VGR3089 gene encodes VGR3089 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43168] VGR3089 precursor RNA folds spatially, forming VGR3089 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3089 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3089 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43169] VGR3089 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM33 precursor RNA, VGAM34 precursor RNA, VGAM35 precursor RNA, VGAM36 precursor RNA, VGAM37 precursor RNA, VGAM38 precursor RNA, VGAM39 precursor RNA and VGAM40 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43170] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM33 RNA, VGAM34 RNA, VGAM35 RNA, VGAM36 RNA, VGAM37 RNA, VGAM38 RNA, VGAM39 RNA and VGAM40 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43171] VGAM33 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM33 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM33 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM33 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43172] VGAM34 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM34 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM34 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM34 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43173] VGAM35 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM35 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM35 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM35 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43174] VGAM36 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM36 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM36 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM36 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43175] VGAM37 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM37 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM37 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM37 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43176] VGAM38 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM38 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM38 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM38 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43177] VGAM39 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM39 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM39 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM39 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[43178] VGAM40 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM40 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM40 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM40 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43179] It is appreciated that a function of VGR3089 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3089 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3089 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3089 gene:

VGAM33 host target protein, VGAM34 host target protein, VGAM35 host target protein, VGAM36 host target protein, VGAM37 host target protein, VGAM38 host target protein, VGAM39 host target protein and VGAM40 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM33, VGAM34, VGAM35, VGAM36, VGAM37, VGAM38, VGAM39 and VGAM40

[43180] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3090(VGR3090) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43181] VGR3090 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3090 gene was detected is described hereinabove with reference to Figs. 6-15.

[43182] VGR3090 gene encodes VGR3090 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43183] VGR3090 precursor RNA folds spatially, forming VGR3090 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3090 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3090 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43184] VGR3090 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM41 precursor RNA, VGAM42 precursor RNA, VGAM43 precursor RNA, VGAM44 precursor RNA, VGAM45 precursor RNA, VGAM46 precursor RNA, VGAM47 precursor RNA and VGAM48 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRE-

CURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43185] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM41 RNA, VGAM42 RNA, VGAM43 RNA, VGAM44 RNA, VGAM45 RNA, VGAM46 RNA, VGAM47 RNA and VGAM48 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43186] VGAM41 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM41 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM41 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM41 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43187] VGAM42 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM42 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM42 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM42 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43188] VGAM43 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM43 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM43 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM43 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43189] VGAM44 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM44 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM44 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM44 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43190] VGAM45 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM45 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM45 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM45 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43191] VGAM46 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM46 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM46 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM46 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43192] VGAM47 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM47 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM47 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM47 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43193] VGAM48 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM48 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM48 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM48 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43194] It is appreciated that a function of VGR3090 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3090 gene include

diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3090 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3090 gene: VGAM41 host target protein, VGAM42 host target protein, VGAM43 host target protein, VGAM44 host target protein, VGAM45 host target protein, VGAM46 host target protein, VGAM47 host target protein and VGAM48 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM41, VGAM42, VGAM43, VGAM44, VGAM45, VGAM46, VGAM47 and VGAM48

[43195] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3091(VGR3091) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[43196] VGR3091 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3091 gene was detected is described hereinabove with reference to Figs. 6-15.

[43197] VGR3091 gene encodes VGR3091 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43198] VGR3091 precursor RNA folds spatially, forming VGR3091 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3091 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3091 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43199] VGR3091 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM49 precursor RNA, VGAM50 precursor RNA, VGAM51 precursor RNA, VGAM52 precursor RNA, VGAM53 precursor RNA, VGAM54 precursor RNA, VGAM55 precursor RNA and VGAM56 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43200] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM49 RNA, VGAM50 RNA, VGAM51 RNA, VGAM52 RNA, VGAM53 RNA, VGAM54 RNA, VGAM55 RNA and VGAM56 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43201] VGAM49 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM49 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM49 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM49 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43202] VGAM50 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM50 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM50 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM50 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43203] VGAM51 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM51 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM51 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM51 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43204] VGAM52 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM52 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM52 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM52 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43205] VGAM53 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM53 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM53 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM53 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43206] VGAM54 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM54 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM54 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM54 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[43207] VGAM55 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM55 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM55 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM55 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43208] VGAM56 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM56 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM56 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM56 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43209] It is appreciated that a function of VGR3091 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3091 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3091 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3091 gene: VGAM49 host target protein, VGAM50 host target protein, VGAM51 host target protein, VGAM52 host target protein, VGAM53 host target protein, VGAM54 host target protein, VGAM55 host target protein and VGAM56 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM49, VGAM50, VGAM51, VGAM52, VGAM53, VGAM54, VGAM55 and VGAM56

[43210] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3092(VGR3092) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43211] VGR3092 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3092 gene was detected is described hereinabove with reference to Figs. 6-15.

[43212] VGR3092 gene encodes VGR3092 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43213] VGR3092 precursor RNA folds spatially, forming VGR3092 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3092 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3092 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43214] VGR3092 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM57 precursor RNA, VGAM58 precursor RNA, VGAM59 precursor RNA, VGAM60 precursor RNA, VGAM61 precursor RNA, VGAM62 precursor RNA and VGAM63 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43215] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM57 RNA, VGAM58 RNA, VGAM59 RNA, VGAM60 RNA, VGAM61 RNA, VGAM62 RNA and VGAM63 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and

VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43216] VGAM57 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM57 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM57 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM57 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43217] VGAM58 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM58 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM58 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM58 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43218] VGAM59 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM59 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM59 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM59 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43219] VGAM60 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM60 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM60 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM60 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43220] VGAM61 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM61 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM61 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM61 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43221] VGAM62 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM62 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM62 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM62 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43222] VGAM63 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM63 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM63 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM63 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43223] It is appreciated that a function of VGR3092 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3092 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly

utilities, of VGR3092 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3092 gene: VGAM57 host target protein, VGAM58 host target protein, VGAM59 host target protein, VGAM60 host target protein, VGAM61 host target protein, VGAM62 host target protein and VGAM63 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM57, VGAM58, VGAM59, VGAM60, VGAM61, VGAM62 and VGAM63

[43224] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3093(VGR3093) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43225] VGR3093 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3093 gene was detected is described hereinabove with reference to Figs. 6-15.

[43226] VGR3093 gene encodes VGR3093 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43227] VGR3093 precursor RNA folds spatially, forming VGR3093 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3093 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3093 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43228] VGR3093 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM64 precursor RNA, VGAM65 precursor RNA, VGAM66 precursor RNA, VGAM67 precursor RNA, VGAM68 precursor RNA, VGAM69 precursor RNA,

VGAM70 precursor RNA and VGAM71 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43229] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM64 RNA, VGAM65 RNA, VGAM66 RNA, VGAM67 RNA, VGAM68 RNA, VGAM69 RNA, VGAM70 RNA and VGAM71 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43230] VGAM64 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM64 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM64 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM64 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43231] VGAM65 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM65 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM65 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM65 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43232] VGAM66 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM66 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM66 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM66 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43233] VGAM67 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM67 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM67 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM67 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43234] VGAM68 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM68 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM68 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM68 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43235] VGAM69 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM69 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM69 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM69 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43236] VGAM70 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding

site located in an untranslated region of VGAM70 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM70 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM70 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43237] VGAM71 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM71 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM71 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM71 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43238] It is appreciated that a function of VGR3093 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3093 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3093 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3093 gene: VGAM64 host target protein, VGAM65 host target protein, VGAM66 host target protein, VGAM67 host target protein, VGAM68 host target protein, VGAM69 host target protein, VGAM70 host target protein and VGAM71 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM64, VGAM65, VGAM66, VGAM67, VGAM68, VGAM69, VGAM70 and VGAM71

[43239] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3094(VGR3094) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43240] VGR3094 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3094 gene was detected is described hereinabove with reference to Figs. 6-15.

[43241] VGR3094 gene encodes VGR3094 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43242] VGR3094 precursor RNA folds spatially, forming VGR3094 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3094 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3094 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43243] VGR3094 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM72 precursor RNA, VGAM73 precursor RNA, VGAM74 precursor RNA, VGAM75 precursor RNA, VGAM76 precursor RNA, VGAM77 precursor RNA, VGAM78 precursor RNA and VGAM79 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43244] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM72 RNA, VGAM73 RNA, VGAM74 RNA, VGAM75 RNA, VGAM76 RNA, VGAM77 RNA, VGAM78 RNA and VGAM79 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[43245] VGAM72 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM72 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM72 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM72 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43246] VGAM73 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM73 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM73 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM73 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43247] VGAM74 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM74 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM74 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM74 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43248] VGAM75 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM75 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM75 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM75 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43249] VGAM76 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM76 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM76 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM76 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43250] VGAM77 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM77 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM77 host target RNA, herein

schematically represented by VGAM6 HOST TARGET RNA into VGAM77 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43251] VGAM78 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM78 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM78 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM78 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43252] VGAM79 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM79 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM79 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM79 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43253] It is appreciated that a function of VGR3094 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3094 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3094 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3094 gene: VGAM72 host target protein, VGAM73 host target protein, VGAM74 host target protein, VGAM75 host target protein, VGAM76 host target protein, VGAM77 host target protein, VGAM78 host target protein and VGAM79 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM72,

VGAM73, VGAM74, VGAM75, VGAM76, VGAM77, VGAM78 and VGAM79

[43254] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3095(VGR3095) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43255] VGR3095 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3095 gene was detected is described hereinabove with reference to Figs. 6-15.

[43256] VGR3095 gene encodes VGR3095 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43257] VGR3095 precursor RNA folds spatially, forming VGR3095 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3095 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3095 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43258] VGR3095 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM80 precursor RNA, VGAM81 precursor RNA, VGAM82 precursor RNA, VGAM83 precursor RNA, VGAM84 precursor RNA and VGAM85 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43259] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM80 RNA, VGAM81 RNA, VGAM82 RNA, VGAM83 RNA, VGAM84 RNA and VGAM85 RNA respectively, herein schematically

represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43260] VGAM80 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM80 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM80 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM80 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43261] VGAM81 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM81 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM81 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM81 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43262] VGAM82 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM82 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM82 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM82 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43263] VGAM83 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM83 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM83 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM83 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43264] VGAM84 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM84 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM84 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM84 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43265] VGAM85 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM85 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM85 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM85 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43266] It is appreciated that a function of VGR3095 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3095 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3095 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3095 gene: VGAM80 host target protein, VGAM81 host target protein, VGAM82 host target protein, VGAM83 host target protein, VGAM84 host target protein and VGAM85 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM80, VGAM81, VGAM82, VGAM83, VGAM84 and VGAM85

[43267] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3096(VGR3096) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43268] VGR3096 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3096 gene was detected is described hereinabove with reference to Figs. 6-15.

[43269] VGR3096 gene encodes VGR3096 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43270] VGR3096 precursor RNA folds spatially, forming VGR3096 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3096 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3096 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43271] VGR3096 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM86 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA and VGAM87 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43272] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM86

RNA, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA and VGAM87 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43273] VGAM86 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM86 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM86 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM86 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43274] VGAM87 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43275] VGAM87 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43276] VGAM87 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43277] VGAM87 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43278] VGAM87 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding

site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43279] VGAM87 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43280] VGAM87 RNA, herein schematically represented by

VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43281] It is appreciated that a function of VGR3096 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3096 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3096 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3096 gene: VGAM86 host target protein, VGAM87 host target protein, VGAM87 host target protein, VGAM87

host target protein, VGAM87 host target protein, VGAM87 host target protein, VGAM87 host target protein and VGAM87 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM86, VGAM87, VGAM87, VGAM87, VGAM87, VGAM87, VGAM87 and VGAM87

[43282] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3097(VGR3097) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43283] VGR3097 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3097 gene was detected is described hereinabove with reference to Figs. 6-15.

[43284] VGR3097 gene encodes VGR3097 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[43285] VGR3097 precursor RNA folds spatially, forming VGR3097 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3097 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3097 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43286] VGR3097 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA, VGAM87 precursor RNA and VGAM88 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively,

each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43287] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA, VGAM87 RNA and VGAM88 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43288] VGAM87 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM87 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43289] VGAM87 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43290] VGAM87 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM87 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43291] VGAM87 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43292] VGAM87 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43293] VGAM87 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43294] VGAM87 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM87 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM87 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM87 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43295] VGAM88 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM88 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM88 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM88 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43296] It is appreciated that a function of VGR3097 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3097 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and

accordingly utilities, of VGR3097 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3097 gene: VGAM87 host target protein, VGAM87 host target protein, VGAM87 host target protein, VGAM87 host target protein, VGAM87 host target protein, VGAM87 host target protein, VGAM87 host target protein and VGAM88 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM87, VGAM87, VGAM87, VGAM87, VGAM87, VGAM87, VGAM87 and VGAM88

[43297] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3098(VGR3098) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43298] VGR3098 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3098 gene was detected is described hereinabove with reference to Figs. 6-15.

[43299] VGR3098 gene encodes VGR3098 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43300] VGR3098 precursor RNA folds spatially, forming VGR3098 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3098 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3098 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43301] VGR3098 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM89 precursor RNA, VGAM90 precursor RNA, VGAM91 precursor RNA, VGAM92 precursor RNA,

VGAM93 precursor RNA, VGAM94 precursor RNA, VGAM95 precursor RNA and VGAM96 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRE-CURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-SOR RNA of Fig. 8.

[43302] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM89 RNA, VGAM90 RNA, VGAM91 RNA, VGAM92 RNA, VGAM93 RNA, VGAM94 RNA, VGAM95 RNA and VGAM96 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43303] VGAM89 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM89 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM89 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM89 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43304] VGAM90 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM90 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM90 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM90 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43305] VGAM91 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM91 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM91 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM91 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43306] VGAM92 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM92 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM92 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM92 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43307] VGAM93 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM93 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM93 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM93 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43308] VGAM94 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM94 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM94 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM94 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43309] VGAM95 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM95 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM95 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM95 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43310] VGAM96 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM96 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM96 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM96 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43311] It is appreciated that a function of VGR3098 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3098 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3098 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3098 gene: VGAM89 host target protein, VGAM90 host target protein, VGAM91 host target protein, VGAM92 host target protein, VGAM93 host target protein, VGAM94 host target protein, VGAM95 host target protein and VGAM96 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM89, VGAM90, VGAM91, VGAM92, VGAM93, VGAM94, VGAM95 and VGAM96

[43312] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3099(VGR3099) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43313] VGR3099 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3099 gene was detected is described hereinabove with reference to Figs. 6-15.

[43314] VGR3099 gene encodes VGR3099 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43315] VGR3099 precursor RNA folds spatially, forming VGR3099 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3099 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3099 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[43316] VGR3099 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM97 precursor RNA, VGAM98 precursor RNA, VGAM99 precursor RNA, VGAM100 precursor RNA, VGAM101 precursor RNA, VGAM102 precursor RNA, VGAM103 precursor RNA and VGAM104 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43317] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM97 RNA, VGAM98 RNA, VGAM99 RNA, VGAM100 RNA, VGAM101 RNA, VGAM102 RNA, VGAM103 RNA and VGAM104 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43318] VGAM97 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM97 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM97 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM97 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43319] VGAM98 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM98 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM98 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM98 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43320] VGAM99 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM99 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM99 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM99 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43321] VGAM100 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM100 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM100 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM100 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43322] VGAM101 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM101 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM101 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM101 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43323] VGAM102 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM102 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM102 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM102 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43324] VGAM103 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM103 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM103 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM103 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43325] VGAM104 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM104 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM104 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM104 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43326] It is appreciated that a function of VGR3099 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3099 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3099 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3099 gene: VGAM97 host target protein, VGAM98 host target protein, VGAM99 host target protein, VGAM100 host target protein, VGAM101 host target protein, VGAM102 host target protein, VGAM103 host target protein and VGAM104 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively.

The function of these host target genes is elaborated hereinabove with reference to VGAM97, VGAM98, VGAM99, VGAM100, VGAM101, VGAM102, VGAM103 and VGAM104

[43327] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3100(VGR3100) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43328] VGR3100 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3100 gene was detected is described hereinabove with reference to Figs. 6-15.

[43329] VGR3100 gene encodes VGR3100 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43330] VGR3100 precursor RNA folds spatially, forming VGR3100 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3100 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3100 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43331] VGR3100 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM105 precursor RNA and VGAM106 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43332] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM105 RNA and VGAM106 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of

Fig. 8.

[43333] VGAM105 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM105 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM105 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM105 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43334] VGAM106 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM106 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM106 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM106 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43335] It is appreciated that a function of VGR3100 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3100 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3100 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3100 gene: VGAM105 host target protein and VGAM106 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM105 and VGAM106

[43336] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3101(VGR3101) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43337] VGR3101 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3101 gene was detected is described hereinabove with reference to Figs. 6-15.

[43338] VGR3101 gene encodes VGR3101 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43339] VGR3101 precursor RNA folds spatially, forming VGR3101 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3101 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3101 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43340] VGR3101 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM107 precursor RNA, VGAM108 precursor RNA, VGAM109 precursor RNA, VGAM110 precursor RNA, VGAM111 precursor RNA, VGAM112 precursor RNA, VGAM113 precursor RNA and VGAM114 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43341] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM107 RNA, VGAM108 RNA, VGAM109 RNA, VGAM110 RNA, VGAM111 RNA, VGAM112 RNA, VGAM113 RNA and VGAM114 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43342] VGAM107 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM107 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM107 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM107 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43343] VGAM108 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM108 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM108 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM108 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[43344] VGAM109 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM109 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM109 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM109 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43345] VGAM110 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM110 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM110 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM110 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43346] VGAM111 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM111 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM111 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM111 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43347] VGAM112 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM112 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM112 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM112 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43348] VGAM113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43349] VGAM114 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM114 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM114 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM114 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43350] It is appreciated that a function of VGR3101 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3101 gene include diagnosis, prevention and treatment of viral infection by Ateline herpesvirus 3. Specific functions, and accordingly utilities, of VGR3101 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3101 gene: VGAM107 host target protein, VGAM108 host target protein, VGAM109 host target protein, VGAM110 host target protein, VGAM111 host target protein, VGAM112 host target protein, VGAM113 host target protein and VGAM114 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM107, VGAM108, VGAM109, VGAM110, VGAM111,

VGAM112, VGAM113 and VGAM114

[43351] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3102(VGR3102) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43352] VGR3102 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3102 gene was detected is described hereinabove with reference to Figs. 6-15.

[43353] VGR3102 gene encodes VGR3102 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43354] VGR3102 precursor RNA folds spatially, forming VGR3102 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3102 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3102 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43355] VGR3102 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM115 precursor RNA, VGAM116 precursor RNA, VGAM117 precursor RNA, VGAM118 precursor RNA, VGAM119 precursor RNA, VGAM120 precursor RNA, VGAM121 precursor RNA and VGAM122 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43356] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM115 RNA, VGAM116 RNA, VGAM117 RNA, VGAM118 RNA,

VGAM119 RNA, VGAM120 RNA, VGAM121 RNA and VGAM122 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43357] VGAM115 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM115 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM115 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM115 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43358] VGAM116 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM116 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM116 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM116 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43359] VGAM117 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM117 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM117 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM117 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43360] VGAM118 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM118 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM118 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM118 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43361] VGAM119 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM119 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM119 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM119 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43362] VGAM120 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM120 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM120 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM120 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43363] VGAM121 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM121 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM121 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM121 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43364] VGAM122 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding

site located in an untranslated region of VGAM122 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM122 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM122 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43365] It is appreciated that a function of VGR3102 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3102 gene include diagnosis, prevention and treatment of viral infection by Ateline herpesvirus 3. Specific functions, and accordingly utilities, of VGR3102 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3102 gene: VGAM115 host target protein, VGAM116 host target protein, VGAM117 host target protein, VGAM118 host target protein, VGAM119 host target protein, VGAM120 host tar-

get protein, VGAM121 host target protein and VGAM122 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM115, VGAM116, VGAM117, VGAM118, VGAM119, VGAM120, VGAM121 and VGAM122

[43366] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3103(VGR3103) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43367] VGR3103 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3103 gene was detected is described hereinabove with reference to Figs. 6-15.

[43368] VGR3103 gene encodes VGR3103 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43369] VGR3103 precursor RNA folds spatially, forming VGR3103 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3103 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3103 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43370] VGR3103 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM123 precursor RNA, VGAM124 precursor RNA, VGAM125 precursor RNA, VGAM126 precursor RNA, VGAM127 precursor RNA, VGAM128 precursor RNA, VGAM129 precursor RNA and VGAM130 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43371] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM123 RNA, VGAM124 RNA, VGAM125 RNA, VGAM126 RNA, VGAM127 RNA, VGAM128 RNA, VGAM129 RNA and VGAM130 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43372] VGAM123 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM123 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM123 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM123 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[43373] VGAM124 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM124 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM124 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM124 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43374] VGAM125 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM125 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM125 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM125 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43375] VGAM126 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM126 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM126 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM126 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43376] VGAM127 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM127 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM127 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM127 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43377] VGAM128 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM128 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM128 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM128 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43378] VGAM129 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM129 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM129 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM129 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43379] VGAM130 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM130 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM130 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM130 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43380] It is appreciated that a function of VGR3103 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3103 gene include diagnosis, prevention and treatment of viral infection by Ateline herpesvirus 3. Specific functions, and accordingly utilities, of VGR3103 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3103 gene: VGAM123 host target protein, VGAM124 host target protein, VGAM125 host target protein, VGAM126 host target protein, VGAM127 host target protein, VGAM128 host target protein, VGAM129 host target protein and VGAM130 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM123, VGAM124, VGAM125, VGAM126, VGAM127, VGAM128, VGAM129 and VGAM130

[43381] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3104(VGR3104) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43382] VGR3104 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3104 gene was detected is described hereinabove with reference to Figs. 6-15.

[43383] VGR3104 gene encodes VGR3104 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43384] VGR3104 precursor RNA folds spatially, forming VGR3104 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3104 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3104 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43385] VGR3104 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM131 precursor RNA, VGAM132 precursor RNA, VGAM133 precursor RNA, VGAM134 precursor RNA, VGAM135 precursor RNA, VGAM136 precursor RNA,

VGAM137 precursor RNA and VGAM138 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43386] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM131 RNA, VGAM132 RNA, VGAM133 RNA, VGAM134 RNA, VGAM135 RNA, VGAM136 RNA, VGAM137 RNA and VGAM138 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43387] VGAM131 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM131 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM131 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM131 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43388] VGAM132 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM132 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM132 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM132 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43389] VGAM133 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM133 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM133 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM133 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43390] VGAM134 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM134 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM134 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM134 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43391] VGAM135 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM135 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM135 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM135 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43392] VGAM136 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM136 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM136 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM136 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43393] VGAM137 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding

site located in an untranslated region of VGAM137 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM137 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM137 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43394] VGAM138 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM138 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM138 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM138 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43395] It is appreciated that a function of VGR3104 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3104 gene include diagnosis, prevention and treatment of viral infection by Ateline herpesvirus 3. Specific functions, and accordingly utilities, of VGR3104 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3104 gene: VGAM131 host target protein, VGAM132 host target protein, VGAM133 host target protein, VGAM134 host target protein, VGAM135 host target protein, VGAM136 host target protein, VGAM137 host target protein and VGAM138 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM131, VGAM132, VGAM133, VGAM134, VGAM135, VGAM136, VGAM137 and VGAM138

[43396] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3105(VGR3105) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43397] VGR3105 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3105 gene was detected is described hereinabove with reference to Figs. 6-15.

[43398] VGR3105 gene encodes VGR3105 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43399] VGR3105 precursor RNA folds spatially, forming VGR3105 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3105 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3105 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43400] VGR3105 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM139 precursor RNA, VGAM140 precursor RNA, VGAM141 precursor RNA, VGAM142 precursor RNA and VGAM143 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43401] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM139 RNA, VGAM140 RNA, VGAM141 RNA, VGAM142 RNA and VGAM143 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43402] VGAM139 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM139 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM139 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM139 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43403] VGAM140 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM140 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM140 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM140 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43404] VGAM141 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM141 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM141 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM141 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43405] VGAM142 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM142 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM142 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM142 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43406] VGAM143 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM143 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM143 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM143 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43407] It is appreciated that a function of VGR3105 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3105 gene include diagnosis, prevention and treatment of viral infection by Ateline herpesvirus 3. Specific functions, and accordingly utilities, of VGR3105 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3105 gene: VGAM139 host target protein, VGAM140 host target protein, VGAM141 host target protein, VGAM142 host target protein and VGAM143 host target protein, herein

schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM139, VGAM140, VGAM141, VGAM142 and VGAM143

[43408] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3106(VGR3106) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43409] VGR3106 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3106 gene was detected is described hereinabove with reference to Figs. 6-15.

[43410] VGR3106 gene encodes VGR3106 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43411] VGR3106 precursor RNA folds spatially, forming VGR3106 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3106 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3106 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43412] VGR3106 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM144 precursor RNA, VGAM145 precursor RNA, VGAM146 precursor RNA, VGAM147 precursor RNA, VGAM148 precursor RNA, VGAM149 precursor RNA, VGAM150 precursor RNA and VGAM151 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43413] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM144 RNA, VGAM145 RNA, VGAM146 RNA, VGAM147 RNA, VGAM148 RNA, VGAM149 RNA, VGAM150 RNA and VGAM151 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43414] VGAM144 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM144 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM144 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM144 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43415] VGAM145 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM145 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM145 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM145 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43416] VGAM146 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM146 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM146 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM146 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43417] VGAM147 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM147 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM147 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM147 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43418] VGAM148 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM148 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM148 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM148 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[43419] VGAM149 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM149 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM149 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM149 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43420] VGAM150 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM150 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM150 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM150 host target protein, herein schematically

represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43421] VGAM151 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM151 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM151 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM151 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43422] It is appreciated that a function of VGR3106 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3106 gene include diagnosis, prevention and treatment of viral infection by Saimiriine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3106 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM

RNAs comprised in the operon-like cluster of VGR3106 gene: VGAM144 host target protein, VGAM145 host target protein, VGAM146 host target protein, VGAM147 host target protein, VGAM148 host target protein, VGAM149 host target protein, VGAM150 host target protein and VGAM151 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM144, VGAM145, VGAM146, VGAM147, VGAM148, VGAM149, VGAM150 and VGAM151

[43423] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3107(VGR3107) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43424] VGR3107 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3107 gene was detected is described hereinabove with reference to Figs.

6-15.

[43425] VGR3107 gene encodes VGR3107 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43426] VGR3107 precursor RNA folds spatially, forming VGR3107 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3107 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3107 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43427] VGR3107 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM152 precursor RNA, VGAM153 precursor RNA and VGAM154 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA seg-

ment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43428] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM152 RNA, VGAM153 RNA and VGAM154 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43429] VGAM152 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM152 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM152 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM152 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43430] VGAM153 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM153 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM153 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM153 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43431] VGAM154 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM154 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM154 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM154 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43432] It is appreciated that a function of VGR3107 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3107 gene include diagnosis, prevention and treatment of viral infection by Saimiriine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3107 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3107 gene: VGAM152 host target protein, VGAM153 host target protein and VGAM154 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM152, VGAM153 and VGAM154

[43433] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3108(VGR3108) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43434] VGR3108 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3108 gene was detected is described hereinabove with reference to Figs. 6-15.

[43435] VGR3108 gene encodes VGR3108 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43436] VGR3108 precursor RNA folds spatially, forming VGR3108 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3108 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3108 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43437] VGR3108 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM155 precursor RNA, VGAM156 precur-

sor RNA, VGAM157 precursor RNA, VGAM158 precursor RNA, VGAM159 precursor RNA, VGAM160 precursor RNA, VGAM161 precursor RNA and VGAM162 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRE-CURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-SOR RNA of Fig. 8.

[43438] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM155 RNA, VGAM156 RNA, VGAM157 RNA, VGAM158 RNA, VGAM159 RNA, VGAM160 RNA, VGAM161 RNA and VGAM162 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43439] VGAM155 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM155 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM155 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM155 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43440] VGAM156 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM156 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM156 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM156 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43441] VGAM157 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM157 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM157 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM157 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43442] VGAM158 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM158 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM158 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM158 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43443] VGAM159 RNA, herein schematically represented by

VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM159 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM159 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM159 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43444] VGAM160 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM160 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM160 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM160 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43445] VGAM161 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM161 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM161 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM161 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43446] VGAM162 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM162 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM162 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM162 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[43447] It is appreciated that a function of VGR3108 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3108 gene include diagnosis, prevention and treatment of viral infection by Sheeppox virus. Specific functions, and accordingly utilities, of VGR3108 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3108 gene: VGAM155 host target protein, VGAM156 host target protein, VGAM157 host target protein, VGAM158 host target protein, VGAM159 host target protein, VGAM160 host target protein, VGAM161 host target protein and VGAM162 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM155, VGAM156, VGAM157, VGAM158, VGAM159, VGAM160, VGAM161 and VGAM162

[43448] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3109(VGR3109) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43449] VGR3109 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3109 gene was detected is described hereinabove with reference to Figs. 6-15.

[43450] VGR3109 gene encodes VGR3109 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43451] VGR3109 precursor RNA folds spatially, forming VGR3109 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3109 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3109 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43452] VGR3109 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM163 precursor RNA, VGAM164 precursor RNA, VGAM165 precursor RNA, VGAM166 precursor RNA, VGAM167 precursor RNA, VGAM168 precursor RNA, VGAM169 precursor RNA and VGAM170 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43453] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM163 RNA, VGAM164 RNA, VGAM165 RNA, VGAM166 RNA, VGAM167 RNA, VGAM168 RNA, VGAM169 RNA and VGAM170 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43454] VGAM163 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM163 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM163 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM163 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43455] VGAM164 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM164 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM164 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM164 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43456] VGAM165 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM165 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM165 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM165 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43457] VGAM166 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM166 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM166 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM166 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43458] VGAM167 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM167 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM167 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM167 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43459] VGAM168 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM168 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM168 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM168 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43460] VGAM169 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM169 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM169 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM169 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43461] VGAM170 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM170 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM170 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM170 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43462] It is appreciated that a function of VGR3109 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3109 gene include diagnosis, prevention and treatment of viral infection by Sheeppox virus. Specific functions, and accordingly utilities, of VGR3109 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3109 gene: VGAM163 host target protein, VGAM164 host target protein, VGAM165 host target protein, VGAM166 host target protein, VGAM167 host target protein, VGAM168 host target protein, VGAM169 host target protein and VGAM170 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TAR-

GET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM163, VGAM164, VGAM165, VGAM166, VGAM167, VGAM168, VGAM169 and VGAM170

[43463] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3110(VGR3110) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43464] VGR3110 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3110 gene was detected is described hereinabove with reference to Figs. 6-15.

[43465] VGR3110 gene encodes VGR3110 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43466] VGR3110 precursor RNA folds spatially, forming VGR3110 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3110 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3110 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43467] VGR3110 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM171 precursor RNA, VGAM172 precursor RNA, VGAM173 precursor RNA, VGAM174 precursor RNA, VGAM175 precursor RNA, VGAM176 precursor RNA, VGAM177 precursor RNA and VGAM178 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43468] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM171 RNA, VGAM172 RNA, VGAM173 RNA, VGAM174 RNA, VGAM175 RNA, VGAM176 RNA, VGAM177 RNA and VGAM178 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43469] VGAM171 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM171 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM171 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM171 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43470] VGAM172 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM172 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM172 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM172 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43471] VGAM173 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM173 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM173 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM173 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43472] VGAM174 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM174 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM174 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM174 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43473] VGAM175 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM175 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM175 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM175 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43474] VGAM176 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM176 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM176 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM176 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43475] VGAM177 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM177 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM177 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM177 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[43476] VGAM178 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM178 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM178 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM178 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43477] It is appreciated that a function of VGR3110 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3110 gene include diagnosis, prevention and treatment of viral infection by Sheeppox virus. Specific functions, and accordingly utilities, of VGR3110 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3110 gene:

VGAM171 host target protein, VGAM172 host target protein, VGAM173 host target protein, VGAM174 host target protein, VGAM175 host target protein, VGAM176 host target protein, VGAM177 host target protein and VGAM178 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM171, VGAM172, VGAM173, VGAM174, VGAM175, VGAM176, VGAM177 and VGAM178

[43478] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3111(VGR3111) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43479] VGR3111 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3111 gene was detected is described hereinabove with reference to Figs. 6-15.

[43480] VGR3111 gene encodes VGR3111 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43481] VGR3111 precursor RNA folds spatially, forming VGR3111 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3111 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3111 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43482] VGR3111 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM179 precursor RNA, VGAM180 precursor RNA, VGAM181 precursor RNA, VGAM182 precursor RNA, VGAM183 precursor RNA, VGAM184 precursor RNA, VGAM185 precursor RNA and VGAM186 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRE-

CURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43483] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM179 RNA, VGAM180 RNA, VGAM181 RNA, VGAM182 RNA, VGAM183 RNA, VGAM184 RNA, VGAM185 RNA and VGAM186 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43484] VGAM179 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM179 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM179 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM179 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43485] VGAM180 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM180 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM180 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM180 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43486] VGAM181 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM181 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM181 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM181 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43487] VGAM182 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM182 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM182 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM182 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43488] VGAM183 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM183 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM183 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM183 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43489] VGAM184 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM184 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM184 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM184 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43490] VGAM185 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM185 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM185 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM185 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43491] VGAM186 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM186 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM186 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM186 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43492] It is appreciated that a function of VGR3111 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3111 gene include

diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3111 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3111 gene: VGAM179 host target protein, VGAM180 host target protein, VGAM181 host target protein, VGAM182 host target protein, VGAM183 host target protein, VGAM184 host target protein, VGAM185 host target protein and VGAM186 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM179, VGAM180, VGAM181, VGAM182, VGAM183, VGAM184, VGAM185 and VGAM186

[43493] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3112(VGR3112) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[43494] VGR3112 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3112 gene was detected is described hereinabove with reference to Figs. 6-15.

[43495] VGR3112 gene encodes VGR3112 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43496] VGR3112 precursor RNA folds spatially, forming VGR3112 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3112 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3112 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43497] VGR3112 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM187 precursor RNA, VGAM188 precursor RNA, VGAM189 precursor RNA, VGAM190 precursor RNA, VGAM191 precursor RNA, VGAM192 precursor RNA, VGAM193 precursor RNA and VGAM194 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43498] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM187 RNA, VGAM188 RNA, VGAM189 RNA, VGAM190 RNA, VGAM191 RNA, VGAM192 RNA, VGAM193 RNA and VGAM194 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43499] VGAM187 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM187 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM187 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM187 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43500] VGAM188 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM188 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM188 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM188 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43501] VGAM189 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM189 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM189 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM189 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43502] VGAM190 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM190 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM190 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM190 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43503] VGAM191 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM191 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM191 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM191 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43504] VGAM192 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM192 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM192 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM192 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[43505] VGAM193 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM193 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM193 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM193 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43506] VGAM194 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM194 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM194 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM194 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43507] It is appreciated that a function of VGR3112 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3112 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3112 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3112 gene: VGAM187 host target protein, VGAM188 host target protein, VGAM189 host target protein, VGAM190 host target protein, VGAM191 host target protein, VGAM192 host target protein, VGAM193 host target protein and VGAM194 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM187, VGAM188, VGAM189, VGAM190, VGAM191, VGAM192, VGAM193 and VGAM194

[43508] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3113(VGR3113) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43509] VGR3113 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3113 gene was detected is described hereinabove with reference to Figs. 6-15.

[43510] VGR3113 gene encodes VGR3113 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43511] VGR3113 precursor RNA folds spatially, forming VGR3113 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3113 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3113 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43512] VGR3113 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM195 precursor RNA, VGAM196 precursor RNA, VGAM197 precursor RNA, VGAM198 precursor RNA, VGAM199 precursor RNA, VGAM200 precursor RNA, VGAM201 precursor RNA and VGAM202 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43513] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM195 RNA, VGAM196 RNA, VGAM197 RNA, VGAM198 RNA, VGAM199 RNA, VGAM200 RNA, VGAM201 RNA and VGAM202 RNA respectively, herein schematically repre-

sented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43514] VGAM195 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM195 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM195 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM195 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43515] VGAM196 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM196 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM196 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM196 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43516] VGAM197 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM197 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM197 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM197 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43517] VGAM198 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM198 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM198 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM198 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43518] VGAM199 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM199 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM199 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM199 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43519] VGAM200 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM200 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM200 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM200 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43520] VGAM201 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM201 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM201 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM201 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43521] VGAM202 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM202 host target RNA, herein schematically represented by VGAM8

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM202 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM202 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43522] It is appreciated that a function of VGR3113 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3113 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3113 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3113 gene: VGAM195 host target protein, VGAM196 host target protein, VGAM197 host target protein, VGAM198 host target protein, VGAM199 host target protein, VGAM200 host target protein, VGAM201 host target protein and VGAM202 host target protein, herein schematically represented by

VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM195, VGAM196, VGAM197, VGAM198, VGAM199, VGAM200, VGAM201 and VGAM202

[43523] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3114(VGR3114) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43524] VGR3114 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3114 gene was detected is described hereinabove with reference to Figs. 6-15.

[43525] VGR3114 gene encodes VGR3114 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43526] VGR3114 precursor RNA folds spatially, forming VGR3114 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3114 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3114 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43527] VGR3114 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM203 precursor RNA, VGAM204 precursor RNA and VGAM205 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43528] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM203 RNA, VGAM204 RNA and VGAM205 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2

RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43529] VGAM203 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM203 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM203 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM203 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43530] VGAM204 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM204 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM204 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM204 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43531] VGAM205 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM205 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM205 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM205 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43532] It is appreciated that a function of VGR3114 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3114 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3114 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of

the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3114 gene: VGAM203 host target protein, VGAM204 host target protein and VGAM205 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM203, VGAM204 and VGAM205

[43533] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3115(VGR3115) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43534] VGR3115 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3115 gene was detected is described hereinabove with reference to Figs. 6-15.

[43535] VGR3115 gene encodes VGR3115 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43536] VGR3115 precursor RNA folds spatially, forming VGR3115 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3115 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3115 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43537] VGR3115 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM206 precursor RNA, VGAM207 precursor RNA, VGAM208 precursor RNA, VGAM209 precursor RNA, VGAM210 precursor RNA, VGAM211 precursor RNA and VGAM212 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR re-

spectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43538] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM206 RNA, VGAM207 RNA, VGAM208 RNA, VGAM209 RNA, VGAM210 RNA, VGAM211 RNA and VGAM212 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43539] VGAM206 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM206 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM206 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM206 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[43540] VGAM207 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM207 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM207 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM207 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43541] VGAM208 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM208 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM208 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM208 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43542] VGAM209 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM209 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM209 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM209 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43543] VGAM210 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM210 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM210 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM210 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43544] VGAM211 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM211 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM211 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM211 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43545] VGAM212 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM212 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM212 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM212 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43546] It is appreciated that a function of VGR3115 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3115 gene include diagnosis, prevention and treatment of viral infection by Lumpy skin disease virus. Specific functions, and accordingly utilities, of VGR3115 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3115 gene: VGAM206 host target protein, VGAM207 host target protein, VGAM208 host target protein, VGAM209 host target protein, VGAM210 host target protein, VGAM211 host target protein and VGAM212 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM206, VGAM207, VGAM208, VGAM209, VGAM210, VGAM211 and VGAM212

[43547] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3116(VGR3116) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43548] VGR3116 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3116 gene was detected is described hereinabove with reference to Figs. 6-15.

[43549] VGR3116 gene encodes VGR3116 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43550] VGR3116 precursor RNA folds spatially, forming VGR3116 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3116 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3116 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43551] VGR3116 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM213 precursor RNA, VGAM214 precursor RNA, VGAM215 precursor RNA, VGAM216 precursor RNA, VGAM217 precursor RNA, VGAM218 precursor RNA, VGAM218 precursor RNA and VGAM218 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43552] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM213 RNA, VGAM214 RNA, VGAM215 RNA, VGAM216 RNA, VGAM217 RNA, VGAM218 RNA, VGAM218 RNA and

VGAM218 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43553] VGAM213 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM213 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM213 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM213 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43554] VGAM214 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM214 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM214 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM214 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43555] VGAM215 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM215 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM215 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM215 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43556] VGAM216 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM216 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM216 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM216 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43557] VGAM217 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM217 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM217 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM217 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43558] VGAM218 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM218 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM218 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM218 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43559] VGAM218 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM218 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM218 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM218 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43560] VGAM218 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM218 host

target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM218 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM218 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43561] It is appreciated that a function of VGR3116 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3116 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3116 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3116 gene: VGAM213 host target protein, VGAM214 host target protein, VGAM215 host target protein, VGAM216 host target protein, VGAM217 host target protein, VGAM218 host target protein, VGAM218 host target protein and VGAM218

host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM213, VGAM214, VGAM215, VGAM216, VGAM217, VGAM218, VGAM218 and VGAM218

[43562] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3117(VGR3117) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43563] VGR3117 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3117 gene was detected is described hereinabove with reference to Figs. 6-15.

[43564] VGR3117 gene encodes VGR3117 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43565] VGR3117 precursor RNA folds spatially, forming VGR3117

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3117 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3117 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43566] VGR3117 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM218 precursor RNA, VGAM219 precursor RNA, VGAM220 precursor RNA and VGAM221 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43567] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM218

RNA, VGAM219 RNA, VGAM220 RNA and VGAM221 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43568] VGAM218 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM218 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM218 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM218 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43569] VGAM219 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM219 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM219 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM219 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43570] VGAM220 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM220 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM220 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM220 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43571] VGAM221 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM221 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM221 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM221 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43572] It is appreciated that a function of VGR3117 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3117 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3117 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3117 gene: VGAM218 host target protein, VGAM219 host target protein, VGAM220 host target protein and VGAM221 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM218, VGAM219, VGAM220 and VGAM221

[43573] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3118(VGR3118) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43574] VGR3118 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3118 gene was detected is described hereinabove with reference to Figs. 6-15.

[43575] VGR3118 gene encodes VGR3118 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43576] VGR3118 precursor RNA folds spatially, forming VGR3118 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3118 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3118 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43577] VGR3118 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM222 precursor RNA, VGAM223 precursor RNA, VGAM224 precursor RNA, VGAM225 precursor RNA, VGAM226 precursor RNA and VGAM227 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43578] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM222 RNA, VGAM223 RNA, VGAM224 RNA, VGAM225 RNA, VGAM226 RNA and VGAM227 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA,

VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43579] VGAM222 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM222 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM222 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM222 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43580] VGAM223 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM223 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM223 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM223 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43581] VGAM224 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM224 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM224 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM224 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43582] VGAM225 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM225 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM225 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM225 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43583] VGAM226 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM226 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM226 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM226 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43584] VGAM227 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM227 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM227 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM227 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43585] It is appreciated that a function of VGR3118 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3118 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3118 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3118 gene: VGAM222 host target protein, VGAM223 host target protein, VGAM224 host target protein, VGAM225 host target protein, VGAM226 host target protein and VGAM227 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM222, VGAM223, VGAM224, VGAM225, VGAM226 and VGAM227

[43586] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3119(VGR3119) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43587] VGR3119 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3119 gene was detected is described hereinabove with reference to Figs. 6-15.

[43588] VGR3119 gene encodes VGR3119 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43589] VGR3119 precursor RNA folds spatially, forming VGR3119 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3119 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3119 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43590] VGR3119 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM228 precursor RNA, VGAM229 precursor RNA, VGAM230 precursor RNA, VGAM231 precursor RNA, VGAM232 precursor RNA and VGAM233 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43591] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM228 RNA, VGAM229 RNA, VGAM230 RNA, VGAM231 RNA, VGAM232 RNA and VGAM233 RNA respectively, herein

schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43592] VGAM228 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM228 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM228 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM228 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43593] VGAM229 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM229 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM229 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM229 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43594] VGAM230 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM230 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM230 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM230 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43595] VGAM231 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM231 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM231 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM231 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43596] VGAM232 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM232 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM232 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM232 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43597] VGAM233 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM233 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM233 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM233 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43598] It is appreciated that a function of VGR3119 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3119 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3119 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3119 gene: VGAM228 host target protein, VGAM229 host target protein, VGAM230 host target protein, VGAM231 host target protein, VGAM232 host target protein and VGAM233 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host tar-

get genes is elaborated hereinabove with reference to VGAM228, VGAM229, VGAM230, VGAM231, VGAM232 and VGAM233

[43599] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3120(VGR3120) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43600] VGR3120 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3120 gene was detected is described hereinabove with reference to Figs. 6-15.

[43601] VGR3120 gene encodes VGR3120 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43602] VGR3120 precursor RNA folds spatially, forming VGR3120 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3120 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3120 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43603] VGR3120 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM234 precursor RNA and VGAM235 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43604] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM234 RNA and VGAM235 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43605] VGAM234 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM234 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM234 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM234 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43606] VGAM235 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM235 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM235 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM235 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[43607] It is appreciated that a function of VGR3120 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3120 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3120 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3120 gene: VGAM234 host target protein and VGAM235 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM234 and VGAM235

[43608] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3121(VGR3121) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[43609] VGR3121 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3121 gene was detected is described hereinabove with reference to Figs. 6-15.

[43610] VGR3121 gene encodes VGR3121 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43611] VGR3121 precursor RNA folds spatially, forming VGR3121 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3121 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3121 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43612] VGR3121 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM236 precursor RNA, VGAM237 precursor RNA, VGAM238 precursor RNA, VGAM239 precursor RNA, VGAM240 precursor RNA and VGAM241 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43613] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM236 RNA, VGAM237 RNA, VGAM238 RNA, VGAM239 RNA, VGAM240 RNA and VGAM241 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43614] VGAM236 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM236 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM236 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM236 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43615] VGAM237 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM237 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM237 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM237 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43616] VGAM238 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM238 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM238 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM238 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43617] VGAM239 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM239 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM239 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM239 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43618] VGAM240 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM240 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM240 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM240 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43619] VGAM241 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM241 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM241 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM241 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43620] It is appreciated that a function of VGR3121 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3121 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3121 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3121 gene: VGAM236 host target protein, VGAM237 host target protein, VGAM238 host target protein, VGAM239 host target protein, VGAM240 host target protein and VGAM241 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM236, VGAM237, VGAM238, VGAM239, VGAM240 and VGAM241

[43621] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3122(VGR3122) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43622] VGR3122 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3122 gene was detected is described hereinabove with reference to Figs. 6-15.

[43623] VGR3122 gene encodes VGR3122 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43624] VGR3122 precursor RNA folds spatially, forming VGR3122 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3122 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3122 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43625] VGR3122 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM242 precursor RNA, VGAM243 precursor RNA, VGAM244 precursor RNA, VGAM245 precursor RNA, VGAM246 precursor RNA, VGAM247 precursor RNA, VGAM248 precursor RNA and VGAM249 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43626] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM242 RNA, VGAM243 RNA, VGAM244 RNA, VGAM245 RNA, VGAM246 RNA, VGAM247 RNA, VGAM248 RNA and VGAM249 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43627] VGAM242 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM242 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM242 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM242 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43628] VGAM243 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM243 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM243 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM243 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[43629] VGAM244 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM244 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM244 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM244 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43630] VGAM245 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM245 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM245 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM245 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43631] VGAM246 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM246 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM246 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM246 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43632] VGAM247 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM247 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM247 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM247 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43633] VGAM248 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM248 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM248 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM248 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43634] VGAM249 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM249 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM249 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM249 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43635] It is appreciated that a function of VGR3122 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3122 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3122 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3122 gene: VGAM242 host target protein, VGAM243 host target protein, VGAM244 host target protein, VGAM245 host target protein, VGAM246 host target protein, VGAM247 host target protein, VGAM248 host target protein and VGAM249 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM242, VGAM243, VGAM244, VGAM245, VGAM246,

VGAM247, VGAM248 and VGAM249

[43636] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3123(VGR3123) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43637] VGR3123 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3123 gene was detected is described hereinabove with reference to Figs. 6-15.

[43638] VGR3123 gene encodes VGR3123 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43639] VGR3123 precursor RNA folds spatially, forming VGR3123 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3123 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3123 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43640] VGR3123 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM250 precursor RNA and VGAM251 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43641] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM250 RNA and VGAM251 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43642] VGAM250 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM250 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM250 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM250 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43643] VGAM251 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM251 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM251 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM251 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43644] It is appreciated that a function of VGR3123 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3123 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3123 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3123 gene: VGAM250 host target protein and VGAM251 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM250 and VGAM251

[43645] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3124(VGR3124) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43646] VGR3124 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3124 gene was detected is described hereinabove with reference to Figs. 6-15.

[43647] VGR3124 gene encodes VGR3124 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43648] VGR3124 precursor RNA folds spatially, forming VGR3124 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3124 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3124 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43649] VGR3124 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM252 precursor RNA, VGAM253 precur-

sor RNA, VGAM254 precursor RNA, VGAM255 precursor RNA, VGAM256 precursor RNA, VGAM257 precursor RNA, VGAM258 precursor RNA and VGAM259 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43650] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM252 RNA, VGAM253 RNA, VGAM254 RNA, VGAM255 RNA, VGAM256 RNA, VGAM257 RNA, VGAM258 RNA and VGAM259 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43651] VGAM252 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM252 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM252 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM252 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43652] VGAM253 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM253 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM253 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM253 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43653] VGAM254 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM254 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM254 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM254 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43654] VGAM255 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM255 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM255 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM255 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43655] VGAM256 RNA, herein schematically represented by

VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM256 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM256 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM256 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43656] VGAM257 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM257 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM257 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM257 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43657] VGAM258 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM258 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM258 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM258 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43658] VGAM259 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM259 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM259 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM259 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[43659] It is appreciated that a function of VGR3124 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3124 gene include diagnosis, prevention and treatment of viral infection by Alcelaphine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3124 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3124 gene: VGAM252 host target protein, VGAM253 host target protein, VGAM254 host target protein, VGAM255 host target protein, VGAM256 host target protein, VGAM257 host target protein, VGAM258 host target protein and VGAM259 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM252, VGAM253, VGAM254, VGAM255, VGAM256, VGAM257, VGAM258 and VGAM259

[43660] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3125(VGR3125) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43661] VGR3125 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3125 gene was detected is described hereinabove with reference to Figs. 6-15.

[43662] VGR3125 gene encodes VGR3125 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43663] VGR3125 precursor RNA folds spatially, forming VGR3125 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3125 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3125 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43664] VGR3125 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM260 precursor RNA, VGAM261 precursor RNA, VGAM262 precursor RNA and VGAM263 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43665] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM260 RNA, VGAM261 RNA, VGAM262 RNA and VGAM263 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43666] VGAM260 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM260 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM260 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM260 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43667] VGAM261 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM261 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM261 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM261 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43668] VGAM262 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM262 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM262 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM262 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43669] VGAM263 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM263 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM263 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM263 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43670] It is appreciated that a function of VGR3125 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3125 gene include diagnosis, prevention and treatment of viral infection by Alcelaphine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3125 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3125 gene: VGAM260 host target protein, VGAM261 host target protein, VGAM262 host target protein and VGAM263 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM260, VGAM261, VGAM262 and VGAM263

[43671] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3126(VGR3126) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[43672] VGR3126 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3126 gene was detected is described hereinabove with reference to Figs. 6-15.

[43673] VGR3126 gene encodes VGR3126 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43674] VGR3126 precursor RNA folds spatially, forming VGR3126 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3126 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3126 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43675] VGR3126 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM pre-

cursor RNAs, VGAM264 precursor RNA, VGAM265 precursor RNA, VGAM266 precursor RNA, VGAM267 precursor RNA, VGAM268 precursor RNA, VGAM269 precursor RNA and VGAM270 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43676] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM264 RNA, VGAM265 RNA, VGAM266 RNA, VGAM267 RNA, VGAM268 RNA, VGAM269 RNA and VGAM270 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43677] VGAM264 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM264 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM264 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM264 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43678] VGAM265 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM265 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM265 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM265 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43679] VGAM266 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM266 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM266 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM266 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43680] VGAM267 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM267 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM267 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM267 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43681] VGAM268 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM268 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM268 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM268 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43682] VGAM269 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM269 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM269 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM269 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43683] VGAM270 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM270 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM270 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM270 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43684] It is appreciated that a function of VGR3126 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3126 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3126 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3126 gene: VGAM264 host target protein, VGAM265 host target protein, VGAM266 host target protein, VGAM267 host target

protein, VGAM268 host target protein, VGAM269 host target protein and VGAM270 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM264, VGAM265, VGAM266, VGAM267, VGAM268, VGAM269 and VGAM270

[43685] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3127(VGR3127) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43686] VGR3127 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3127 gene was detected is described hereinabove with reference to Figs. 6-15.

[43687] VGR3127 gene encodes VGR3127 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43688] VGR3127 precursor RNA folds spatially, forming VGR3127 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3127 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3127 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43689] VGR3127 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM271 precursor RNA, VGAM272 precursor RNA, VGAM273 precursor RNA, VGAM274 precursor RNA, VGAM275 precursor RNA, VGAM276 precursor RNA and VGAM277 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM

PRECURSOR RNA of Fig. 8.

[43690] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM271 RNA, VGAM272 RNA, VGAM273 RNA, VGAM274 RNA, VGAM275 RNA, VGAM276 RNA and VGAM277 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43691] VGAM271 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM271 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM271 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM271 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43692] VGAM272 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM272 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM272 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM272 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43693] VGAM273 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM273 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM273 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM273 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43694] VGAM274 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM274 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM274 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM274 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43695] VGAM275 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM275 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM275 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM275 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[43696] VGAM276 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM276 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM276 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM276 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43697] VGAM277 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM277 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM277 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM277 host target protein, herein schematically

represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43698] It is appreciated that a function of VGR3127 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3127 gene include diagnosis, prevention and treatment of viral infection by Yaba-like disease virus. Specific functions, and accordingly utilities, of VGR3127 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3127 gene: VGAM271 host target protein, VGAM272 host target protein, VGAM273 host target protein, VGAM274 host target protein, VGAM275 host target protein, VGAM276 host target protein and VGAM277 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM271, VGAM272, VGAM273, VGAM274, VGAM275, VGAM276 and VGAM277

[43699] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3128(VGR3128) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43700] VGR3128 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3128 gene was detected is described hereinabove with reference to Figs. 6-15.

[43701] VGR3128 gene encodes VGR3128 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43702] VGR3128 precursor RNA folds spatially, forming VGR3128 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3128 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3128 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43703] VGR3128 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM278 precursor RNA, VGAM279 precursor RNA, VGAM280 precursor RNA, VGAM281 precursor RNA, VGAM282 precursor RNA and VGAM283 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43704] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM278 RNA, VGAM279 RNA, VGAM280 RNA, VGAM281 RNA, VGAM282 RNA and VGAM283 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43705] VGAM278 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM278 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM278 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM278 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43706] VGAM279 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM279 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM279 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM279 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[43707] VGAM280 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM280 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM280 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM280 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43708] VGAM281 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM281 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM281 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM281 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43709] VGAM282 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM282 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM282 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM282 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43710] VGAM283 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM283 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM283 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM283 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43711] It is appreciated that a function of VGR3128 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3128 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3128 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3128 gene: VGAM278 host target protein, VGAM279 host target protein, VGAM280 host target protein, VGAM281 host target protein, VGAM282 host target protein and VGAM283 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM278, VGAM279, VGAM280, VGAM281, VGAM282 and VGAM283

[43712] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3129(VGR3129) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43713] VGR3129 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3129 gene was detected is described hereinabove with reference to Figs. 6-15.

[43714] VGR3129 gene encodes VGR3129 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43715] VGR3129 precursor RNA folds spatially, forming VGR3129 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3129 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3129 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43716] VGR3129 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM284 precursor RNA, VGAM285 precursor RNA and VGAM286 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43717] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM284 RNA, VGAM285 RNA and VGAM286 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43718] VGAM284 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM284 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM284 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM284 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43719] VGAM285 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM285 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM285 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM285 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43720] VGAM286 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM286 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM286 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM286 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43721] It is appreciated that a function of VGR3129 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3129 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3129 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3129 gene: VGAM284 host target protein, VGAM285 host target protein and VGAM286 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respec-

tively. The function of these host target genes is elaborated hereinabove with reference to VGAM284, VGAM285 and VGAM286

[43722] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3130(VGR3130) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43723] VGR3130 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3130 gene was detected is described hereinabove with reference to Figs. 6-15.

[43724] VGR3130 gene encodes VGR3130 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43725] VGR3130 precursor RNA folds spatially, forming VGR3130 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3130 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3130 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43726] VGR3130 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM287 precursor RNA, VGAM288 precursor RNA, VGAM289 precursor RNA, VGAM290 precursor RNA, VGAM291 precursor RNA, VGAM292 precursor RNA, VGAM293 precursor RNA and VGAM294 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43727] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM287 RNA, VGAM288 RNA, VGAM289 RNA, VGAM290 RNA, VGAM291 RNA, VGAM292 RNA, VGAM293 RNA and VGAM294 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43728] VGAM287 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM287 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM287 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM287 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43729] VGAM288 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM288 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM288 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM288 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43730] VGAM289 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM289 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM289 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM289 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43731] VGAM290 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM290 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM290 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM290 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43732] VGAM291 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM291 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM291 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM291 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43733] VGAM292 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM292 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM292 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM292 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43734] VGAM293 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM293 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM293 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM293 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43735] VGAM294 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM294 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM294 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM294 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43736] It is appreciated that a function of VGR3130 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3130 gene include diagnosis, prevention and treatment of viral infection by Southern bean mosaic virus. Specific functions, and accordingly utilities, of VGR3130 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3130 gene: VGAM287 host target protein, VGAM288

host target protein, VGAM289 host target protein, VGAM290 host target protein, VGAM291 host target protein, VGAM292 host target protein, VGAM293 host target protein and VGAM294 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM287, VGAM288, VGAM289, VGAM290, VGAM291, VGAM292, VGAM293 and VGAM294

[43737] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3131(VGR3131) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43738] VGR3131 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3131 gene was detected is described hereinabove with reference to Figs. 6-15.

[43739] VGR3131 gene encodes VGR3131 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43740] VGR3131 precursor RNA folds spatially, forming VGR3131 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3131 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3131 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43741] VGR3131 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM295 precursor RNA, VGAM296 precursor RNA, VGAM297 precursor RNA, VGAM298 precursor RNA, VGAM299 precursor RNA, VGAM300 precursor RNA, VGAM301 precursor RNA and VGAM302 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRE-

CURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43742] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM295 RNA, VGAM296 RNA, VGAM297 RNA, VGAM298 RNA, VGAM299 RNA, VGAM300 RNA, VGAM301 RNA and VGAM302 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43743] VGAM295 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM295 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM295 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM295 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43744] VGAM296 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM296 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM296 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM296 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43745] VGAM297 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM297 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM297 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM297 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43746] VGAM298 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM298 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM298 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM298 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43747] VGAM299 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM299 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM299 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM299 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43748] VGAM300 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM300 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM300 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM300 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43749] VGAM301 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM301 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM301 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM301 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43750] VGAM302 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM302 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM302 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM302 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43751] It is appreciated that a function of VGR3131 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3131 gene include

diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3131 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3131 gene: VGAM295 host target protein, VGAM296 host target protein, VGAM297 host target protein, VGAM298 host target protein, VGAM299 host target protein, VGAM300 host target protein, VGAM301 host target protein and VGAM302 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM295, VGAM296, VGAM297, VGAM298, VGAM299, VGAM300, VGAM301 and VGAM302

[43752] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3132(VGR3132) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[43753] VGR3132 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3132 gene was detected is described hereinabove with reference to Figs. 6-15.

[43754] VGR3132 gene encodes VGR3132 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43755] VGR3132 precursor RNA folds spatially, forming VGR3132 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3132 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3132 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43756] VGR3132 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM303 precursor RNA, VGAM304 precursor RNA and VGAM305 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43757] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM303 RNA, VGAM304 RNA and VGAM305 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43758] VGAM303 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM303 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM303 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM303 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43759] VGAM304 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM304 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM304 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM304 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43760] VGAM305 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM305 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM305 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM305 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43761] It is appreciated that a function of VGR3132 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3132 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3132 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3132 gene: VGAM303 host target protein, VGAM304 host target protein and VGAM305 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM303, VGAM304 and VGAM305

[43762] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3133(VGR3133) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43763] VGR3133 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3133 gene was detected is described hereinabove with reference to Figs. 6-15.

[43764] VGR3133 gene encodes VGR3133 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43765] VGR3133 precursor RNA folds spatially, forming VGR3133 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3133 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3133 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43766] VGR3133 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM306 precursor RNA, VGAM307 precursor RNA, VGAM308 precursor RNA, VGAM309 precursor RNA, VGAM310 precursor RNA, VGAM311 precursor RNA, VGAM312 precursor RNA and VGAM313 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43767] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM306 RNA, VGAM307 RNA, VGAM308 RNA, VGAM309 RNA, VGAM310 RNA, VGAM311 RNA, VGAM312 RNA and VGAM313 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43768] VGAM306 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM306 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM306 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM306 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43769] VGAM307 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM307 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM307 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM307 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43770] VGAM308 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM308 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM308 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM308 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43771] VGAM309 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM309 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM309 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM309 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43772] VGAM310 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM310 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM310 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM310 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43773] VGAM311 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM311 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM311 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM311 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43774] VGAM312 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM312 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM312 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM312 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43775] VGAM313 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM313 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM313 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM313 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43776] It is appreciated that a function of VGR3133 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3133 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3133 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3133 gene: VGAM306 host target protein, VGAM307 host target protein, VGAM308 host target protein, VGAM309 host target protein, VGAM310 host target protein, VGAM311 host target protein, VGAM312 host target protein and VGAM313 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TAR-

GET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM306, VGAM307, VGAM308, VGAM309, VGAM310, VGAM311, VGAM312 and VGAM313

[43777] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3134(VGR3134) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43778] VGR3134 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3134 gene was detected is described hereinabove with reference to Figs. 6-15.

[43779] VGR3134 gene encodes VGR3134 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43780] VGR3134 precursor RNA folds spatially, forming VGR3134 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3134 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3134 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43781] VGR3134 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM314 precursor RNA and VGAM315 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43782] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM314 RNA and VGAM315 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of

Fig. 8.

[43783] VGAM314 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM314 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM314 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM314 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43784] VGAM315 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM315 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM315 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM315 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43785] It is appreciated that a function of VGR3134 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3134 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3134 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3134 gene: VGAM314 host target protein and VGAM315 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM314 and VGAM315

[43786] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3135(VGR3135) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43787] VGR3135 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3135 gene was detected is described hereinabove with reference to Figs. 6-15.

[43788] VGR3135 gene encodes VGR3135 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43789] VGR3135 precursor RNA folds spatially, forming VGR3135 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3135 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3135 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43790] VGR3135 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM316 precursor RNA, VGAM317 precursor RNA, VGAM318 precursor RNA and VGAM319 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43791] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM316 RNA, VGAM317 RNA, VGAM318 RNA and VGAM319 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43792] VGAM316 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM316 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM316 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM316 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43793] VGAM317 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM317 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM317 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM317 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43794] VGAM318 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM318 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM318 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM318 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43795] VGAM319 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM319 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM319 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM319 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43796] It is appreciated that a function of VGR3135 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3135 gene include

diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3135 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3135 gene: VGAM316 host target protein, VGAM317 host target protein, VGAM318 host target protein and VGAM319 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM316, VGAM317, VGAM318 and VGAM319

[43797] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3136(VGR3136) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43798] VGR3136 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3136 gene was detected is described hereinabove with reference to Figs. 6-15.

[43799] VGR3136 gene encodes VGR3136 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43800] VGR3136 precursor RNA folds spatially, forming VGR3136 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3136 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3136 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43801] VGR3136 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM320 precursor RNA, VGAM321 precursor RNA, VGAM322 precursor RNA, VGAM323 precursor RNA, VGAM324 precursor RNA and VGAM325 precursor

RNA, herein schematically represented by VGAM1 PRE-CURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRE-CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43802] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM320 RNA, VGAM321 RNA, VGAM322 RNA, VGAM323 RNA, VGAM324 RNA and VGAM325 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43803] VGAM320 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM320 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM320 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM320 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43804] VGAM321 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM321 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM321 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM321 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43805] VGAM322 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM322 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM322 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM322 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43806] VGAM323 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM323 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM323 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM323 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43807] VGAM324 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM324 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM324 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM324 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43808] VGAM325 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM325 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM325 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM325 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43809] It is appreciated that a function of VGR3136 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3136 gene include diagnosis, prevention and treatment of viral infection by

Human herpesvirus 6. Specific functions, and accordingly utilities, of VGR3136 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3136 gene: VGAM320 host target protein, VGAM321 host target protein, VGAM322 host target protein, VGAM323 host target protein, VGAM324 host target protein and VGAM325 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM320, VGAM321, VGAM322, VGAM323, VGAM324 and VGAM325

[43810] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3137(VGR3137) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43811] VGR3137 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3137 gene was detected is described hereinabove with reference to Figs. 6-15.

[43812] VGR3137 gene encodes VGR3137 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43813] VGR3137 precursor RNA folds spatially, forming VGR3137 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3137 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3137 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43814] VGR3137 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM326 precursor RNA and VGAM327 precursor RNA, herein schematically represented by VGAM1

PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43815] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM326 RNA and VGAM327 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43816] VGAM326 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM326 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM326 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM326 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43817] VGAM327 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM327 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM327 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM327 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43818] It is appreciated that a function of VGR3137 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3137 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3137 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3137 gene: VGAM326 host target protein and VGAM327 host target

protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM326 and VGAM327

[43819] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3138(VGR3138) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43820] VGR3138 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3138 gene was detected is described hereinabove with reference to Figs. 6-15.

[43821] VGR3138 gene encodes VGR3138 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43822] VGR3138 precursor RNA folds spatially, forming VGR3138 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3138 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3138 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43823] VGR3138 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM328 precursor RNA, VGAM329 precursor RNA, VGAM330 precursor RNA, VGAM331 precursor RNA and VGAM332 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43824] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM328

RNA, VGAM329 RNA, VGAM330 RNA, VGAM331 RNA and VGAM332 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43825] VGAM328 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM328 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM328 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM328 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43826] VGAM329 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM329 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM329 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM329 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43827] VGAM330 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM330 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM330 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM330 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43828] VGAM331 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM331 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM331 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM331 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43829] VGAM332 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM332 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM332 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM332 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43830] It is appreciated that a function of VGR3138 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3138 gene include

diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3138 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3138 gene: VGAM328 host target protein, VGAM329 host target protein, VGAM330 host target protein, VGAM331 host target protein and VGAM332 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM328, VGAM329, VGAM330, VGAM331 and VGAM332

[43831] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3139(VGR3139) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43832] VGR3139 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3139 gene was detected is described hereinabove with reference to Figs. 6-15.

[43833] VGR3139 gene encodes VGR3139 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43834] VGR3139 precursor RNA folds spatially, forming VGR3139 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3139 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3139 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43835] VGR3139 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM333 precursor RNA and VGAM334 precursor RNA, herein schematically represented by VGAM1

PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43836] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM333 RNA and VGAM334 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43837] VGAM333 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM333 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM333 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM333 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43838] VGAM334 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM334 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM334 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM334 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43839] It is appreciated that a function of VGR3139 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3139 gene include diagnosis, prevention and treatment of viral infection by Simian T-lymphotropic virus 1. Specific functions, and accordingly utilities, of VGR3139 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3139 gene: VGAM333 host target protein and VGAM334 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM333 and VGAM334

[43840] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3140(VGR3140) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43841] VGR3140 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3140 gene was detected is described hereinabove with reference to Figs. 6-15.

[43842] VGR3140 gene encodes VGR3140 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43843] VGR3140 precursor RNA folds spatially, forming VGR3140 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3140 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3140 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43844] VGR3140 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM335 precursor RNA, VGAM336 precursor RNA, VGAM337 precursor RNA, VGAM338 precursor RNA and VGAM339 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43845] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM335 RNA, VGAM336 RNA, VGAM337 RNA, VGAM338 RNA and VGAM339 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM

RNAs corresponding to VGAM RNA of Fig. 8.

[43846] VGAM335 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM335 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM335 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM335 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43847] VGAM336 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM336 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM336 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM336 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43848] VGAM337 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM337 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM337 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM337 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43849] VGAM338 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM338 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM338 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM338 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43850] VGAM339 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM339 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM339 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM339 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43851] It is appreciated that a function of VGR3140 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3140 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3140 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host

target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3140 gene: VGAM335 host target protein, VGAM336 host target protein, VGAM337 host target protein, VGAM338 host target protein and VGAM339 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM335, VGAM336, VGAM337, VGAM338 and VGAM339

[43852] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3141(VGR3141) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43853] VGR3141 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3141 gene was detected is described hereinabove with reference to Figs. 6-15.

[43854] VGR3141 gene encodes VGR3141 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43855] VGR3141 precursor RNA folds spatially, forming VGR3141 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3141 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3141 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43856] VGR3141 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM340 precursor RNA, VGAM341 precursor RNA, VGAM342 precursor RNA, VGAM343 precursor RNA and VGAM344 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43857] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM340 RNA, VGAM341 RNA, VGAM342 RNA, VGAM343 RNA and VGAM344 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43858] VGAM340 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM340 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM340 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM340 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43859] VGAM341 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM341 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM341 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM341 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43860] VGAM342 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM342 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM342 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM342 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43861] VGAM343 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM343 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM343 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM343 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43862] VGAM344 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM344 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM344 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM344 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[43863] It is appreciated that a function of VGR3141 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3141 gene include diagnosis, prevention and treatment of viral infection by Equine foamy virus. Specific functions, and accordingly utilities, of VGR3141 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3141 gene: VGAM340 host target protein, VGAM341 host target protein, VGAM342 host target protein, VGAM343 host target protein and VGAM344 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM340, VGAM341, VGAM342, VGAM343 and VGAM344

[43864] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3142(VGR3142) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43865] VGR3142 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3142 gene was detected is described hereinabove with reference to Figs. 6-15.

[43866] VGR3142 gene encodes VGR3142 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43867] VGR3142 precursor RNA folds spatially, forming VGR3142 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3142 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3142 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43868] VGR3142 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM345 precursor RNA and VGAM346 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43869] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM345 RNA and VGAM346 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43870] VGAM345 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM345 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM345 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM345 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43871] VGAM346 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM346 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM346 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM346 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43872] It is appreciated that a function of VGR3142 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3142 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly

utilities, of VGR3142 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3142 gene: VGAM345 host target protein and VGAM346 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM345 and VGAM346

[43873] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3143(VGR3143) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43874] VGR3143 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3143 gene was detected is described hereinabove with reference to Figs. 6-15.

[43875] VGR3143 gene encodes VGR3143 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43876] VGR3143 precursor RNA folds spatially, forming VGR3143 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3143 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3143 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43877] VGR3143 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM347 precursor RNA, VGAM348 precursor RNA, VGAM349 precursor RNA, VGAM350 precursor RNA and VGAM351 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43878] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM347 RNA, VGAM348 RNA, VGAM349 RNA, VGAM350 RNA and VGAM351 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43879] VGAM347 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM347 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM347 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM347 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43880] VGAM348 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM348 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM348 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM348 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43881] VGAM349 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM349 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM349 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM349 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43882] VGAM350 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM350 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM350 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM350 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43883] VGAM351 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM351 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM351 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM351 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[43884] It is appreciated that a function of VGR3143 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3143 gene include diagnosis, prevention and treatment of viral infection by Zaire Ebola virus. Specific functions, and accordingly utilities, of VGR3143 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3143 gene: VGAM347 host target protein, VGAM348 host target protein, VGAM349 host target protein, VGAM350 host target protein and VGAM351 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM347, VGAM348, VGAM349, VGAM350 and VGAM351

[43885] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3144(VGR3144) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43886] VGR3144 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3144 gene was detected is described hereinabove with reference to Figs. 6-15.

[43887] VGR3144 gene encodes VGR3144 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43888] VGR3144 precursor RNA folds spatially, forming VGR3144 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3144 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3144 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43889] VGR3144 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM352 precursor RNA and VGAM353 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43890] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM352 RNA and VGAM353 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43891] VGAM352 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM352 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM352 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM352 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43892] VGAM353 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM353 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM353 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM353 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43893] It is appreciated that a function of VGR3144 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3144 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities,

of VGR3144 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3144 gene: VGAM352 host target protein and VGAM353 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM352 and VGAM353

[43894] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3145(VGR3145) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43895] VGR3145 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3145 gene was detected is described hereinabove with reference to Figs. 6-15.

[43896] VGR3145 gene encodes VGR3145 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43897] VGR3145 precursor RNA folds spatially, forming VGR3145 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3145 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3145 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43898] VGR3145 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM354 precursor RNA, VGAM355 precursor RNA, VGAM356 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA and VGAM357 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRE-

CURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43899] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM354 RNA, VGAM355 RNA, VGAM356 RNA, VGAM357 RNA, VGAM357 RNA, VGAM357 RNA, VGAM357 RNA and VGAM357 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43900] VGAM354 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM354 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM354 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM354 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43901] VGAM355 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM355 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM355 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM355 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43902] VGAM356 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM356 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM356 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM356 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43903] VGAM357 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43904] VGAM357 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43905] VGAM357 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43906] VGAM357 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43907] VGAM357 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43908] It is appreciated that a function of VGR3145 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3145 gene include

diagnosis, prevention and treatment of viral infection by Peanut chlorotic streak virus. Specific functions, and accordingly utilities, of VGR3145 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3145 gene: VGAM354 host target protein, VGAM355 host target protein, VGAM356 host target protein, VGAM357 host target protein, VGAM357 host target protein, VGAM357 host target protein, VGAM357 host target protein and VGAM357 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM354, VGAM355, VGAM356, VGAM357, VGAM357, VGAM357, VGAM357 and VGAM357

[43909] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3146(VGR3146) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[43910] VGR3146 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3146 gene was detected is described hereinabove with reference to Figs. 6-15.

[43911] VGR3146 gene encodes VGR3146 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43912] VGR3146 precursor RNA folds spatially, forming VGR3146 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3146 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3146 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43913] VGR3146 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA and VGAM357 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43914] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM357 RNA, VGAM357 RNA, VGAM357 RNA, VGAM357 RNA, VGAM357 RNA, VGAM357 RNA, VGAM357 RNA and VGAM357 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43915] VGAM357 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43916] VGAM357 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43917] VGAM357 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43918] VGAM357 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[43919] VGAM357 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43920] VGAM357 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM357 host target protein, herein schematically

represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43921] VGAM357 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43922] VGAM357 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA

into VGAM357 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43923] It is appreciated that a function of VGR3146 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3146 gene include diagnosis, prevention and treatment of viral infection by Peanut chlorotic streak virus. Specific functions, and accordingly utilities, of VGR3146 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3146 gene: VGAM357 host target protein, VGAM357 host target protein, VGAM357 host target protein, VGAM357 host target protein, VGAM357 host target protein, VGAM357 host target protein, VGAM357 host target protein and VGAM357 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM357, VGAM357, VGAM357, VGAM357, VGAM357, VGAM357, VGAM357

and VGAM357

[43924] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3147(VGR3147) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43925] VGR3147 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3147 gene was detected is described hereinabove with reference to Figs. 6-15.

[43926] VGR3147 gene encodes VGR3147 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43927] VGR3147 precursor RNA folds spatially, forming VGR3147 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3147 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3147 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43928] VGR3147 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM357 precursor RNA, VGAM358 precursor RNA, VGAM358 precursor RNA, VGAM358 precursor RNA, VGAM358 precursor RNA and VGAM358 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43929] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM357 RNA, VGAM357 RNA, VGAM357 RNA, VGAM358 RNA,

VGAM358 RNA, VGAM358 RNA, VGAM358 RNA and VGAM358 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43930] VGAM357 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43931] VGAM357 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43932] VGAM357 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM357 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM357 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM357 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43933] VGAM358 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM358 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43934] VGAM358 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM358 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43935] VGAM358 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM358 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43936] VGAM358 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM358 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43937] VGAM358 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding

site located in an untranslated region of VGAM358 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43938] It is appreciated that a function of VGR3147 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3147 gene include diagnosis, prevention and treatment of viral infection by Peanut chlorotic streak virus. Specific functions, and accordingly utilities, of VGR3147 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3147 gene: VGAM357 host target protein, VGAM357 host target protein, VGAM357 host target protein, VGAM358 host target protein, VGAM358 host target pro-

tein, VGAM358 host target protein, VGAM358 host target protein and VGAM358 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM357, VGAM357, VGAM357, VGAM358, VGAM358, VGAM358, VGAM358 and VGAM358

[43939] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3148(VGR3148) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43940] VGR3148 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3148 gene was detected is described hereinabove with reference to Figs. 6-15.

[43941] VGR3148 gene encodes VGR3148 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[43942] VGR3148 precursor RNA folds spatially, forming VGR3148 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3148 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3148 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43943] VGR3148 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM358 precursor RNA, VGAM358 precursor RNA, VGAM358 precursor RNA, VGAM358 precursor RNA and VGAM358 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43944] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM358 RNA, VGAM358 RNA, VGAM358 RNA, VGAM358 RNA and VGAM358 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43945] VGAM358 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM358 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43946] VGAM358 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM358 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43947] VGAM358 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM358 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43948] VGAM358 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM358 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43949] VGAM358 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM358 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM358 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM358 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43950] It is appreciated that a function of VGR3148 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3148 gene include diagnosis, prevention and treatment of viral infection by Peanut chlorotic streak virus. Specific functions, and accordingly utilities, of VGR3148 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3148 gene: VGAM358 host target protein, VGAM358 host target protein, VGAM358 host target protein, VGAM358 host target protein and VGAM358 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM358, VGAM358, VGAM358, VGAM358 and VGAM358

[43951] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3149(VGR3149) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[43952] VGR3149 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3149 gene was detected is described hereinabove with reference to Figs. 6-15.

[43953] VGR3149 gene encodes VGR3149 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43954] VGR3149 precursor RNA folds spatially, forming VGR3149 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3149 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3149 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43955] VGR3149 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM359 precursor RNA, VGAM360 precursor RNA, VGAM361 precursor RNA, VGAM362 precursor RNA, VGAM363 precursor RNA, VGAM364 precursor RNA, VGAM364 precursor RNA and VGAM364 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43956] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM359 RNA, VGAM360 RNA, VGAM361 RNA, VGAM362 RNA, VGAM363 RNA, VGAM364 RNA, VGAM364 RNA and VGAM364 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43957] VGAM359 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM359 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM359 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM359 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43958] VGAM360 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM360 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM360 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM360 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43959] VGAM361 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM361 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM361 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM361 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43960] VGAM362 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM362 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM362 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM362 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[43961] VGAM363 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM363 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM363 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM363 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[43962] VGAM364 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM364 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM364 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM364 host target protein, herein schematically

represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[43963] VGAM364 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM364 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM364 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM364 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[43964] VGAM364 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM364 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM364 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA

into VGAM364 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[43965] It is appreciated that a function of VGR3149 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3149 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3149 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3149 gene: VGAM359 host target protein, VGAM360 host target protein, VGAM361 host target protein, VGAM362 host target protein, VGAM363 host target protein, VGAM364 host target protein, VGAM364 host target protein and VGAM364 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM359, VGAM360, VGAM361, VGAM362, VGAM363, VGAM364, VGAM364 and VGAM364

[43966] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3150(VGR3150) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43967] VGR3150 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3150 gene was detected is described hereinabove with reference to Figs. 6-15.

[43968] VGR3150 gene encodes VGR3150 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43969] VGR3150 precursor RNA folds spatially, forming VGR3150 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3150 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3150 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43970] VGR3150 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM364 precursor RNA and VGAM365 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43971] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM364 RNA and VGAM365 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43972] VGAM364 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM364 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM364 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM364 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43973] VGAM365 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM365 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM365 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM365 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43974] It is appreciated that a function of VGR3150 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3150 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3150 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3150 gene: VGAM364 host target protein and VGAM365 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM364 and VGAM365

[43975] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3151(VGR3151) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43976] VGR3151 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3151 gene was detected is described hereinabove with reference to Figs. 6-15.

[43977] VGR3151 gene encodes VGR3151 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43978] VGR3151 precursor RNA folds spatially, forming VGR3151 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3151 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3151 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43979] VGR3151 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM366 precursor RNA, VGAM367 precursor RNA, VGAM368 precursor RNA and VGAM369 precur-

sor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43980] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM366 RNA, VGAM367 RNA, VGAM368 RNA and VGAM369 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43981] VGAM366 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM366 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM366 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM366 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43982] VGAM367 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM367 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM367 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM367 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43983] VGAM368 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM368 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM368 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM368 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[43984] VGAM369 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM369 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM369 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM369 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[43985] It is appreciated that a function of VGR3151 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3151 gene include diagnosis, prevention and treatment of viral infection by Himetobi P virus. Specific functions, and accordingly utilities, of VGR3151 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the

host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3151 gene: VGAM366 host target protein, VGAM367 host target protein, VGAM368 host target protein and VGAM369 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM366, VGAM367, VGAM368 and VGAM369

[43986] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3152(VGR3152) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43987] VGR3152 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3152 gene was detected is described hereinabove with reference to Figs. 6-15.

[43988] VGR3152 gene encodes VGR3152 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43989] VGR3152 precursor RNA folds spatially, forming VGR3152 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3152 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3152 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43990] VGR3152 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM370 precursor RNA and VGAM371 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[43991] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM370 RNA and VGAM371 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[43992] VGAM370 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM370 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM370 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM370 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[43993] VGAM371 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM371 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM371 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM371 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[43994] It is appreciated that a function of VGR3152 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3152 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 8. Specific functions, and accordingly utilities, of VGR3152 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3152 gene: VGAM370 host target protein and VGAM371 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM370 and VGAM371

[43995] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3153(VGR3153) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[43996] VGR3153 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3153 gene was detected is described hereinabove with reference to Figs. 6-15.

[43997] VGR3153 gene encodes VGR3153 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[43998] VGR3153 precursor RNA folds spatially, forming VGR3153 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3153 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3153 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[43999] VGR3153 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM372 precursor RNA, VGAM373 precursor RNA, VGAM374 precursor RNA, VGAM375 precursor RNA, VGAM376 precursor RNA, VGAM377 precursor RNA and VGAM378 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44000] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM372 RNA, VGAM373 RNA, VGAM374 RNA, VGAM375 RNA, VGAM376 RNA, VGAM377 RNA and VGAM378 RNA respectively, herein schematically represented by VGAM1

RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44001] VGAM372 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM372 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM372 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM372 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44002] VGAM373 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM373 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM373 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM373 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44003] VGAM374 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM374 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM374 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM374 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44004] VGAM375 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM375 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM375 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM375 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44005] VGAM376 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM376 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM376 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM376 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44006] VGAM377 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM377 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM377 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM377 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44007] VGAM378 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM378 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM378 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM378 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44008] It is appreciated that a function of VGR3153 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3153 gene include diagnosis, prevention and treatment of viral infection by

Macaca mulatta rhadinovirus. Specific functions, and accordingly utilities, of VGR3153 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3153 gene: VGAM372 host target protein, VGAM373 host target protein, VGAM374 host target protein, VGAM375 host target protein, VGAM376 host target protein, VGAM377 host target protein and VGAM378 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM372, VGAM373, VGAM374, VGAM375, VGAM376, VGAM377 and VGAM378

[44009] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3154(VGR3154) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44010] VGR3154 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3154 gene was detected is described hereinabove with reference to Figs. 6-15.

[44011] VGR3154 gene encodes VGR3154 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44012] VGR3154 precursor RNA folds spatially, forming VGR3154 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3154 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3154 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44013] VGR3154 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM379 precursor RNA, VGAM380 precur-

sor RNA, VGAM381 precursor RNA, VGAM382 precursor RNA, VGAM383 precursor RNA and VGAM384 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44014] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM379 RNA, VGAM380 RNA, VGAM381 RNA, VGAM382 RNA, VGAM383 RNA and VGAM384 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44015] VGAM379 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM379 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM379 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM379 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44016] VGAM380 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM380 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM380 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM380 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44017] VGAM381 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM381 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM381 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM381 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44018] VGAM382 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM382 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM382 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM382 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44019] VGAM383 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM383 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM383 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM383 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44020] VGAM384 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM384 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM384 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM384 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44021] It is appreciated that a function of VGR3154 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3154 gene include diagnosis, prevention and treatment of viral infection by Cocksfoot mottle virus. Specific functions, and accordingly utilities, of VGR3154 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3154 gene: VGAM379 host target protein, VGAM380 host target protein, VGAM381 host target protein, VGAM382 host target protein, VGAM383 host target protein and VGAM384 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM379, VGAM380, VGAM381, VGAM382, VGAM383 and VGAM384

[44022] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3155(VGR3155) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[44023] VGR3155 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3155 gene was detected is described hereinabove with reference to Figs. 6-15.

[44024] VGR3155 gene encodes VGR3155 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44025] VGR3155 precursor RNA folds spatially, forming VGR3155 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3155 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3155 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44026] VGR3155 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM pre-

cursor RNAs, VGAM385 precursor RNA, VGAM386 precursor RNA, VGAM387 precursor RNA, VGAM388 precursor RNA and VGAM389 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44027] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM385 RNA, VGAM386 RNA, VGAM387 RNA, VGAM388 RNA and VGAM389 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44028] VGAM385 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM385 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM385 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM385 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44029] VGAM386 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM386 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM386 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM386 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44030] VGAM387 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM387 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM387 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM387 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44031] VGAM388 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM388 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM388 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM388 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44032] VGAM389 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM389 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM389 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM389 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44033] It is appreciated that a function of VGR3155 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3155 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3155 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3155 gene: VGAM385 host target protein, VGAM386 host target protein, VGAM387 host target protein, VGAM388 host target protein and VGAM389 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated

hereinabove with reference to VGAM385, VGAM386, VGAM387, VGAM388 and VGAM389

[44034] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3156(VGR3156) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44035] VGR3156 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3156 gene was detected is described hereinabove with reference to Figs. 6-15.

[44036] VGR3156 gene encodes VGR3156 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44037] VGR3156 precursor RNA folds spatially, forming VGR3156 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3156 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3156 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44038] VGR3156 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM390 precursor RNA, VGAM391 precursor RNA and VGAM392 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44039] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM390 RNA, VGAM391 RNA and VGAM392 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44040] VGAM390 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM390 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM390 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM390 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44041] VGAM391 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM391 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM391 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM391 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44042] VGAM392 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM392 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM392 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM392 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44043] It is appreciated that a function of VGR3156 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3156 gene include diagnosis, prevention and treatment of viral infection by Murid herpesvirus 4. Specific functions, and accordingly utilities, of VGR3156 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3156 gene: VGAM390 host target protein, VGAM391 host target pro-

tein and VGAM392 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM390, VGAM391 and VGAM392

[44044] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3157(VGR3157) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44045] VGR3157 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3157 gene was detected is described hereinabove with reference to Figs. 6-15.

[44046] VGR3157 gene encodes VGR3157 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44047] VGR3157 precursor RNA folds spatially, forming VGR3157

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3157 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3157 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44048] VGR3157 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM393 precursor RNA and VGAM394 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44049] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM393 RNA and VGAM394 RNA respectively, herein schematically

represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44050] VGAM393 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM393 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM393 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM393 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44051] VGAM394 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM394 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM394 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM394 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44052] It is appreciated that a function of VGR3157 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3157 gene include diagnosis, prevention and treatment of viral infection by Avian infectious bronchitis virus. Specific functions, and accordingly utilities, of VGR3157 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3157 gene: VGAM393 host target protein and VGAM394 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM393 and VGAM394

[44053] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3158(VGR3158) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44054] VGR3158 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3158 gene was detected is described hereinabove with reference to Figs. 6-15.

[44055] VGR3158 gene encodes VGR3158 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44056] VGR3158 precursor RNA folds spatially, forming VGR3158 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3158 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3158 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[44057] VGR3158 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM395 precursor RNA, VGAM396 precursor RNA, VGAM397 precursor RNA, VGAM398 precursor RNA, VGAM399 precursor RNA, VGAM400 precursor RNA, VGAM401 precursor RNA and VGAM402 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44058] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM395 RNA, VGAM396 RNA, VGAM397 RNA, VGAM398 RNA, VGAM399 RNA, VGAM400 RNA, VGAM401 RNA and VGAM402 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44059] VGAM395 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM395 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM395 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM395 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44060] VGAM396 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM396 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM396 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM396 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44061] VGAM397 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM397 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM397 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM397 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44062] VGAM398 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM398 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM398 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM398 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44063] VGAM399 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM399 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM399 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM399 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44064] VGAM400 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM400 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM400 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM400 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44065] VGAM401 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM401 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM401 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM401 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44066] VGAM402 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM402 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM402 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM402 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44067] It is appreciated that a function of VGR3158 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3158 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3158 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3158 gene: VGAM395 host target protein, VGAM396 host target protein, VGAM397 host target protein, VGAM398 host target protein, VGAM399 host target protein, VGAM400 host target protein, VGAM401 host target protein and VGAM402 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively.

The function of these host target genes is elaborated hereinabove with reference to VGAM395, VGAM396, VGAM397, VGAM398, VGAM399, VGAM400, VGAM401 and VGAM402

[44068] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3159(VGR3159) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44069] VGR3159 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3159 gene was detected is described hereinabove with reference to Figs. 6-15.

[44070] VGR3159 gene encodes VGR3159 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44071] VGR3159 precursor RNA folds spatially, forming VGR3159 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3159 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3159 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44072] VGR3159 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM403 precursor RNA, VGAM404 precursor RNA and VGAM405 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44073] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM403 RNA, VGAM404 RNA and VGAM405 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM

RNAs corresponding to VGAM RNA of Fig. 8.

[44074] VGAM403 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM403 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM403 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM403 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44075] VGAM404 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM404 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM404 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM404 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44076] VGAM405 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM405 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM405 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM405 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44077] It is appreciated that a function of VGR3159 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3159 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3159 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3159 gene: VGAM403 host target protein, VGAM404 host target protein and VGAM405 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM403, VGAM404 and VGAM405

[44078] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3160(VGR3160) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44079] VGR3160 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3160 gene was detected is described hereinabove with reference to Figs. 6-15.

[44080] VGR3160 gene encodes VGR3160 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[44081] VGR3160 precursor RNA folds spatially, forming VGR3160 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3160 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3160 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44082] VGR3160 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM407 precursor RNA and VGAM408 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44083] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM407 RNA and VGAM408 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44084] VGAM407 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM407 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM407 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM407 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44085] VGAM408 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM408 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM408 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM408 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44086] It is appreciated that a function of VGR3160 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3160 gene include diagnosis, prevention and treatment of viral infection by Reston Ebola virus. Specific functions, and accordingly utilities, of VGR3160 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3160 gene: VGAM407 host target protein and VGAM408 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM407 and VGAM408

[44087] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3161(VGR3161) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44088] VGR3161 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3161 gene was detected is described hereinabove with reference to Figs. 6-15.

[44089] VGR3161 gene encodes VGR3161 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44090] VGR3161 precursor RNA folds spatially, forming VGR3161 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3161 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3161 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44091] VGR3161 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM409 precursor RNA and VGAM410 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44092] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM409 RNA and VGAM410 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44093] VGAM409 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM409 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM409 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM409 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44094] VGAM410 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM410 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM410 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM410 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44095] It is appreciated that a function of VGR3161 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3161 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3161 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3161 gene: VGAM409 host target protein and VGAM410 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM409 and VGAM410

[44096] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3162(VGR3162) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44097] VGR3162 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3162 gene was detected is described hereinabove with reference to Figs. 6-15.

[44098] VGR3162 gene encodes VGR3162 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44099] VGR3162 precursor RNA folds spatially, forming VGR3162 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3162 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3162 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44100] VGR3162 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM412 precursor RNA, VGAM413 precursor RNA, VGAM414 precursor RNA, VGAM415 precursor RNA, VGAM416 precursor RNA and VGAM417 precursor

RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44101] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM412 RNA, VGAM413 RNA, VGAM414 RNA, VGAM415 RNA, VGAM416 RNA and VGAM417 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44102] VGAM412 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM412 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM412 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM412 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44103] VGAM413 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM413 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM413 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM413 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44104] VGAM414 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM414 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM414 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM414 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44105] VGAM415 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM415 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM415 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM415 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44106] VGAM416 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM416 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM416 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM416 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44107] VGAM417 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM417 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM417 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM417 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44108] It is appreciated that a function of VGR3162 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3162 gene include diagnosis, prevention and treatment of viral infection by

Human foamy virus. Specific functions, and accordingly utilities, of VGR3162 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3162 gene: VGAM412 host target protein, VGAM413 host target protein, VGAM414 host target protein, VGAM415 host target protein, VGAM416 host target protein and VGAM417 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM412, VGAM413, VGAM414, VGAM415, VGAM416 and VGAM417

[44109] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3163(VGR3163) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44110] VGR3163 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3163 gene was detected is described hereinabove with reference to Figs. 6-15.

[44111] VGR3163 gene encodes VGR3163 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44112] VGR3163 precursor RNA folds spatially, forming VGR3163 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3163 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3163 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44113] VGR3163 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM418 precursor RNA, VGAM419 precursor RNA and VGAM420 precursor RNA, herein schemati-

cally represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44114] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM418 RNA, VGAM419 RNA and VGAM420 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44115] VGAM418 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM418 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM418 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM418 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44116] VGAM419 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM419 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM419 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM419 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44117] VGAM420 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM420 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM420 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM420 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[44118] It is appreciated that a function of VGR3163 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3163 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3163 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3163 gene: VGAM418 host target protein, VGAM419 host target protein and VGAM420 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM418, VGAM419 and VGAM420

[44119] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3164(VGR3164) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44120] VGR3164 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3164 gene was detected is described hereinabove with reference to Figs. 6-15.

[44121] VGR3164 gene encodes VGR3164 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44122] VGR3164 precursor RNA folds spatially, forming VGR3164 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3164 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3164 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44123] VGR3164 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM421 precursor RNA, VGAM422 precursor RNA, VGAM423 precursor RNA, VGAM424 precursor RNA and VGAM425 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44124] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM421 RNA, VGAM422 RNA, VGAM423 RNA, VGAM424 RNA and VGAM425 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44125] VGAM421 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM421 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM421 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM421 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44126] VGAM422 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM422 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM422 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM422 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44127] VGAM423 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM423 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM423 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM423 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44128] VGAM424 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM424 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM424 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM424 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44129] VGAM425 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM425 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM425 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM425 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44130] It is appreciated that a function of VGR3164 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3164 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3164 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3164 gene: VGAM421 host target protein, VGAM422 host target protein, VGAM423 host target protein, VGAM424 host target protein and VGAM425 host target protein, herein schematically represented by VGAM1 HOST TARGET PRO-

TEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM421, VGAM422, VGAM423, VGAM424 and VGAM425

[44131] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3165(VGR3165) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44132] VGR3165 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3165 gene was detected is described hereinabove with reference to Figs. 6-15.

[44133] VGR3165 gene encodes VGR3165 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44134] VGR3165 precursor RNA folds spatially, forming VGR3165 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3165 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3165 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44135] VGR3165 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM426 precursor RNA, VGAM427 precursor RNA and VGAM428 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44136] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM426 RNA, VGAM427 RNA and VGAM428 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM

RNAs corresponding to VGAM RNA of Fig. 8.

[44137] VGAM426 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM426 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM426 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM426 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44138] VGAM427 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM427 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM427 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM427 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44139] VGAM428 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM428 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM428 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM428 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44140] It is appreciated that a function of VGR3165 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3165 gene include diagnosis, prevention and treatment of viral infection by Sesbania mosaic virus. Specific functions, and accordingly utilities, of VGR3165 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3165 gene: VGAM426 host target protein, VGAM427 host target protein and VGAM428 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM426, VGAM427 and VGAM428

[44141] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3166(VGR3166) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44142] VGR3166 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3166 gene was detected is described hereinabove with reference to Figs. 6-15.

[44143] VGR3166 gene encodes VGR3166 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[44144] VGR3166 precursor RNA folds spatially, forming VGR3166 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3166 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3166 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44145] VGR3166 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM429 precursor RNA, VGAM430 precursor RNA, VGAM431 precursor RNA, VGAM432 precursor RNA, VGAM433 precursor RNA and VGAM434 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to

VGAM PRECURSOR RNA of Fig. 8.

[44146] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM429 RNA, VGAM430 RNA, VGAM431 RNA, VGAM432 RNA, VGAM433 RNA and VGAM434 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44147] VGAM429 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM429 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM429 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM429 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44148] VGAM430 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM430 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM430 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM430 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44149] VGAM431 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM431 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM431 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM431 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44150] VGAM432 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM432 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM432 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM432 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44151] VGAM433 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM433 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM433 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM433 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[44152] VGAM434 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM434 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM434 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM434 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44153] It is appreciated that a function of VGR3166 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3166 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3166 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3166 gene:

VGAM429 host target protein, VGAM430 host target protein, VGAM431 host target protein, VGAM432 host target protein, VGAM433 host target protein and VGAM434 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM429, VGAM430, VGAM431, VGAM432, VGAM433 and VGAM434

[44154] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3167(VGR3167) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44155] VGR3167 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3167 gene was detected is described hereinabove with reference to Figs. 6-15.

[44156] VGR3167 gene encodes VGR3167 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44157] VGR3167 precursor RNA folds spatially, forming VGR3167 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3167 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3167 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44158] VGR3167 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM435 precursor RNA, VGAM436 precursor RNA, VGAM437 precursor RNA, VGAM438 precursor RNA, VGAM439 precursor RNA, VGAM440 precursor RNA and VGAM441 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR re-

spectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44159] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM435 RNA, VGAM436 RNA, VGAM437 RNA, VGAM438 RNA, VGAM439 RNA, VGAM440 RNA and VGAM441 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44160] VGAM435 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM435 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM435 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM435 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[44161] VGAM436 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM436 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM436 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM436 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44162] VGAM437 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM437 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM437 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM437 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44163] VGAM438 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM438 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM438 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM438 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44164] VGAM439 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM439 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM439 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM439 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44165] VGAM440 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM440 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM440 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM440 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44166] VGAM441 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM441 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM441 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM441 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44167] It is appreciated that a function of VGR3167 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3167 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3167 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3167 gene: VGAM435 host target protein, VGAM436 host target protein, VGAM437 host target protein, VGAM438 host target protein, VGAM439 host target protein, VGAM440 host target protein and VGAM441 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM435, VGAM436, VGAM437, VGAM438, VGAM439, VGAM440 and VGAM441

[44168] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3168(VGR3168) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44169] VGR3168 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3168 gene was detected is described hereinabove with reference to Figs. 6-15.

[44170] VGR3168 gene encodes VGR3168 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44171] VGR3168 precursor RNA folds spatially, forming VGR3168 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3168 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3168 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44172] VGR3168 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM442 precursor RNA, VGAM443 precursor RNA, VGAM444 precursor RNA, VGAM445 precursor RNA, VGAM446 precursor RNA, VGAM447 precursor RNA and VGAM448 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44173] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM442 RNA, VGAM443 RNA, VGAM444 RNA, VGAM445 RNA, VGAM446 RNA, VGAM447 RNA and VGAM448 RNA respectively, herein schematically represented by VGAM1

RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44174] VGAM442 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM442 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM442 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM442 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44175] VGAM443 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM443 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM443 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM443 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44176] VGAM444 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM444 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM444 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM444 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44177] VGAM445 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM445 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM445 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM445 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44178] VGAM446 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM446 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM446 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM446 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44179] VGAM447 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM447 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM447 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM447 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44180] VGAM448 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM448 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM448 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM448 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44181] It is appreciated that a function of VGR3168 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3168 gene include diagnosis, prevention and treatment of viral infection by

Sulfolobus virus SIRV-2. Specific functions, and accordingly utilities, of VGR3168 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3168 gene: VGAM442 host target protein, VGAM443 host target protein, VGAM444 host target protein, VGAM445 host target protein, VGAM446 host target protein, VGAM447 host target protein and VGAM448 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM442, VGAM443, VGAM444, VGAM445, VGAM446, VGAM447 and VGAM448

[44182] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3169(VGR3169) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44183] VGR3169 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3169 gene was detected is described hereinabove with reference to Figs. 6-15.

[44184] VGR3169 gene encodes VGR3169 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44185] VGR3169 precursor RNA folds spatially, forming VGR3169 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3169 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3169 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44186] VGR3169 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM449 precursor RNA, VGAM450 precursor RNA and VGAM451 precursor RNA, herein schemati-

cally represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44187] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM449 RNA, VGAM450 RNA and VGAM451 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44188] VGAM449 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM449 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM449 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM449 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44189] VGAM450 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM450 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM450 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM450 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44190] VGAM451 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM451 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM451 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM451 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[44191] It is appreciated that a function of VGR3169 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3169 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3169 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3169 gene: VGAM449 host target protein, VGAM450 host target protein and VGAM451 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM449, VGAM450 and VGAM451

[44192] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3170(VGR3170) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44193] VGR3170 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3170 gene was detected is described hereinabove with reference to Figs. 6-15.

[44194] VGR3170 gene encodes VGR3170 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44195] VGR3170 precursor RNA folds spatially, forming VGR3170 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3170 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3170 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44196] VGR3170 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM452 precursor RNA, VGAM453 precursor RNA, VGAM454 precursor RNA and VGAM455 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44197] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM452 RNA, VGAM453 RNA, VGAM454 RNA and VGAM455 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44198] VGAM452 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM452 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM452 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM452 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44199] VGAM453 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM453 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM453 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM453 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44200] VGAM454 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM454 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM454 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM454 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44201] VGAM455 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM455 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM455 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM455 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44202] It is appreciated that a function of VGR3170 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3170 gene include

diagnosis, prevention and treatment of viral infection by Myxoma virus. Specific functions, and accordingly utilities, of VGR3170 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3170 gene: VGAM452 host target protein, VGAM453 host target protein, VGAM454 host target protein and VGAM455 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM452, VGAM453, VGAM454 and VGAM455

[44203] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3171(VGR3171) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44204] VGR3171 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3171 gene was detected is described hereinabove with reference to Figs. 6-15.

[44205] VGR3171 gene encodes VGR3171 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44206] VGR3171 precursor RNA folds spatially, forming VGR3171 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3171 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3171 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44207] VGR3171 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM457 precursor RNA and VGAM458 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44208] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM457 RNA and VGAM458 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44209] VGAM457 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM457 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM457 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM457 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44210] VGAM458 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM458 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM458 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM458 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44211] It is appreciated that a function of VGR3171 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3171 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3171 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3171 gene: VGAM457 host target protein and VGAM458 host target protein, herein schematically represented by VGAM1 HOST

TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM457 and VGAM458

[44212] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3172(VGR3172) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44213] VGR3172 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3172 gene was detected is described hereinabove with reference to Figs. 6-15.

[44214] VGR3172 gene encodes VGR3172 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44215] VGR3172 precursor RNA folds spatially, forming VGR3172 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3172 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3172 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44216] VGR3172 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM459 precursor RNA, VGAM460 precursor RNA, VGAM461 precursor RNA and VGAM462 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44217] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM459 RNA, VGAM460 RNA, VGAM461 RNA and VGAM462 RNA respectively, herein schematically represented by VGAM1

RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44218] VGAM459 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM459 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM459 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM459 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44219] VGAM460 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM460 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM460 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM460 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44220] VGAM461 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM461 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM461 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM461 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44221] VGAM462 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM462 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM462 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM462 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44222] It is appreciated that a function of VGR3172 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3172 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3172 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3172 gene: VGAM459 host target protein, VGAM460 host target protein, VGAM461 host target protein and VGAM462 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM459, VGAM460, VGAM461 and VGAM462

[44223] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3173(VGR3173) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44224] VGR3173 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3173 gene was detected is described hereinabove with reference to Figs. 6-15.

[44225] VGR3173 gene encodes VGR3173 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44226] VGR3173 precursor RNA folds spatially, forming VGR3173 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3173 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3173 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44227] VGR3173 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM463 precursor RNA, VGAM464 precursor RNA, VGAM465 precursor RNA, VGAM466 precursor RNA and VGAM467 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44228] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM463 RNA, VGAM464 RNA, VGAM465 RNA, VGAM466 RNA and VGAM467 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44229] VGAM463 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM463 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM463 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM463 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44230] VGAM464 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM464 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM464 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM464 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44231] VGAM465 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM465 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM465 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM465 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44232] VGAM466 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM466 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM466 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM466 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[44233] VGAM467 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM467 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM467 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM467 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44234] It is appreciated that a function of VGR3173 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3173 gene include diagnosis, prevention and treatment of viral infection by Ateline herpesvirus 3. Specific functions, and accordingly utilities, of VGR3173 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3173 gene:

VGAM463 host target protein, VGAM464 host target protein, VGAM465 host target protein, VGAM466 host target protein and VGAM467 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM463, VGAM464, VGAM465, VGAM466 and VGAM467

[44235] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3174(VGR3174) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44236] VGR3174 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3174 gene was detected is described hereinabove with reference to Figs. 6-15.

[44237] VGR3174 gene encodes VGR3174 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[44238] VGR3174 precursor RNA folds spatially, forming VGR3174 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3174 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3174 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44239] VGR3174 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM468 precursor RNA and VGAM469 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44240] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM468 RNA and VGAM469 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44241] VGAM468 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM468 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM468 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM468 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44242] VGAM469 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM469 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM469 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM469 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44243] It is appreciated that a function of VGR3174 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3174 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3174 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3174 gene: VGAM468 host target protein and VGAM469 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM468 and VGAM469

[44244] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3175(VGR3175) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44245] VGR3175 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3175 gene was detected is described hereinabove with reference to Figs. 6-15.

[44246] VGR3175 gene encodes VGR3175 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44247] VGR3175 precursor RNA folds spatially, forming VGR3175 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3175 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3175 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44248] VGR3175 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM471 precursor RNA, VGAM472 precursor RNA and VGAM473 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44249] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM471 RNA, VGAM472 RNA and VGAM473 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44250] VGAM471 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM471 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM471 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM471 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44251] VGAM472 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM472 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM472 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM472 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44252] VGAM473 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM473 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM473 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM473 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44253] It is appreciated that a function of VGR3175 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3175 gene include diagnosis, prevention and treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGR3175 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3175 gene: VGAM471 host target protein, VGAM472 host target protein and VGAM473 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respec-

tively. The function of these host target genes is elaborated hereinabove with reference to VGAM471, VGAM472 and VGAM473

[44254] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3176(VGR3176) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44255] VGR3176 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3176 gene was detected is described hereinabove with reference to Figs. 6-15.

[44256] VGR3176 gene encodes VGR3176 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44257] VGR3176 precursor RNA folds spatially, forming VGR3176 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3176 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3176 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44258] VGR3176 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM475 precursor RNA, VGAM476 precursor RNA, VGAM477 precursor RNA and VGAM478 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44259] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM475 RNA, VGAM476 RNA, VGAM477 RNA and VGAM478 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44260] VGAM475 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM475 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM475 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM475 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44261] VGAM476 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM476 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM476 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM476 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44262] VGAM477 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM477 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM477 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM477 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44263] VGAM478 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM478 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM478 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM478 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44264] It is appreciated that a function of VGR3176 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3176 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3176 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3176 gene: VGAM475 host target protein, VGAM476 host target protein, VGAM477 host target protein and VGAM478 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM475, VGAM476, VGAM477 and VGAM478

[44265] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3177(VGR3177) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44266] VGR3177 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3177 gene was detected is described hereinabove with reference to Figs. 6-15.

[44267] VGR3177 gene encodes VGR3177 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44268] VGR3177 precursor RNA folds spatially, forming VGR3177 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3177 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3177 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44269] VGR3177 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM479 precursor RNA, VGAM480 precursor RNA and VGAM481 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44270] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM479 RNA, VGAM480 RNA and VGAM481 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44271] VGAM479 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM479 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM479 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM479 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44272] VGAM480 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM480 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM480 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM480 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44273] VGAM481 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM481 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM481 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM481 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44274] It is appreciated that a function of VGR3177 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3177 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3177 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3177 gene: VGAM479 host target protein, VGAM480 host target protein and VGAM481 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated herein-

above with reference to VGAM479, VGAM480 and VGAM481

[44275] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3178(VGR3178) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44276] VGR3178 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3178 gene was detected is described hereinabove with reference to Figs. 6-15.

[44277] VGR3178 gene encodes VGR3178 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44278] VGR3178 precursor RNA folds spatially, forming VGR3178 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3178 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3178 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44279] VGR3178 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM482 precursor RNA and VGAM483 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44280] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM482 RNA and VGAM483 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44281] VGAM482 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM482 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM482 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM482 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44282] VGAM483 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM483 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM483 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM483 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44283] It is appreciated that a function of VGR3178 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3178 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 2. Specific functions, and accordingly utilities, of VGR3178 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3178 gene: VGAM482 host target protein and VGAM483 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM482 and VGAM483

[44284] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3179(VGR3179) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[44285] VGR3179 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3179 gene was detected is described hereinabove with reference to Figs. 6-15.

[44286] VGR3179 gene encodes VGR3179 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44287] VGR3179 precursor RNA folds spatially, forming VGR3179 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3179 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3179 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44288] VGR3179 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM pre-

cursor RNAs, VGAM484 precursor RNA, VGAM485 precursor RNA, VGAM486 precursor RNA and VGAM487 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44289] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM484 RNA, VGAM485 RNA, VGAM486 RNA and VGAM487 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44290] VGAM484 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM484 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM484 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM484 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44291] VGAM485 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM485 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM485 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM485 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44292] VGAM486 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM486 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM486 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM486 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44293] VGAM487 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM487 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM487 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM487 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44294] It is appreciated that a function of VGR3179 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3179 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 4. Specific functions, and accordingly

utilities, of VGR3179 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3179 gene: VGAM484 host target protein, VGAM485 host target protein, VGAM486 host target protein and VGAM487 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM484, VGAM485, VGAM486 and VGAM487

[44295] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3180(VGR3180) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44296] VGR3180 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3180 gene was detected is described hereinabove with reference to Figs.

6-15.

[44297] VGR3180 gene encodes VGR3180 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44298] VGR3180 precursor RNA folds spatially, forming VGR3180 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3180 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3180 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44299] VGR3180 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM488 precursor RNA and VGAM489 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig.

8.

[44300] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM488 RNA and VGAM489 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44301] VGAM488 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM488 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM488 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44302] VGAM489 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM489 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM489 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM489 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44303] It is appreciated that a function of VGR3180 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3180 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3180 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3180 gene: VGAM488 host target protein and VGAM489 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM488 and VGAM489

[44304] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3181(VGR3181) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44305] VGR3181 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3181 gene was detected is described hereinabove with reference to Figs. 6-15.

[44306] VGR3181 gene encodes VGR3181 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44307] VGR3181 precursor RNA folds spatially, forming VGR3181 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3181 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3181 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44308] VGR3181 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM491 precursor RNA and VGAM492 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44309] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM491 RNA and VGAM492 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44310] VGAM491 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM491 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM491 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM491 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44311] VGAM492 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM492 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM492 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM492 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44312] It is appreciated that a function of VGR3181 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3181 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3181 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3181 gene: VGAM491 host target protein and VGAM492 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM491 and VGAM492

[44313] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3182(VGR3182) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[44314] VGR3182 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3182 gene was detected is described hereinabove with reference to Figs. 6-15.

[44315] VGR3182 gene encodes VGR3182 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44316] VGR3182 precursor RNA folds spatially, forming VGR3182 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3182 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3182 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44317] VGR3182 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM pre-

cursor RNAs, VGAM493 precursor RNA, VGAM494 precursor RNA, VGAM495 precursor RNA, VGAM496 precursor RNA, VGAM497 precursor RNA and VGAM498 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44318] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM493 RNA, VGAM494 RNA, VGAM495 RNA, VGAM496 RNA, VGAM497 RNA and VGAM498 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44319] VGAM493 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM493 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM493 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM493 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44320] VGAM494 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM494 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM494 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM494 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44321] VGAM495 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM495 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM495 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM495 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44322] VGAM496 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM496 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM496 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM496 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44323] VGAM497 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM497 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM497 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM497 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44324] VGAM498 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM498 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM498 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM498 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44325] It is appreciated that a function of VGR3182 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3182 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3182 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3182 gene: VGAM493 host target protein, VGAM494 host target protein, VGAM495 host target protein, VGAM496 host target protein, VGAM497 host target protein and VGAM498 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM493, VGAM494, VGAM495, VGAM496, VGAM497 and VGAM498

[44326] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3183(VGR3183) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[44327] VGR3183 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3183 gene was detected is described hereinabove with reference to Figs. 6-15.

[44328] VGR3183 gene encodes VGR3183 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44329] VGR3183 precursor RNA folds spatially, forming VGR3183 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3183 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3183 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44330] VGR3183 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM499 precursor RNA, VGAM500 precursor RNA, VGAM501 precursor RNA, VGAM502 precursor RNA and VGAM503 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44331] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM499 RNA, VGAM500 RNA, VGAM501 RNA, VGAM502 RNA and VGAM503 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44332] VGAM499 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM499 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM499 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM499 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44333] VGAM500 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM500 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM500 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM500 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44334] VGAM501 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM501 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM501 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM501 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44335] VGAM502 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM502 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM502 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM502 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44336] VGAM503 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM503 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM503 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM503 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44337] It is appreciated that a function of VGR3183 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3183 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3183 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3183 gene: VGAM499 host target protein, VGAM500 host target protein, VGAM501 host target protein, VGAM502 host target protein and VGAM503 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively.

The function of these host target genes is elaborated hereinabove with reference to VGAM499, VGAM500, VGAM501, VGAM502 and VGAM503

[44338] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3184(VGR3184) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44339] VGR3184 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3184 gene was detected is described hereinabove with reference to Figs. 6-15.

[44340] VGR3184 gene encodes VGR3184 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44341] VGR3184 precursor RNA folds spatially, forming VGR3184 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3184 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3184 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44342] VGR3184 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM504 precursor RNA, VGAM505 precursor RNA, VGAM506 precursor RNA, VGAM507 precursor RNA, VGAM508 precursor RNA and VGAM509 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44343] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM504 RNA, VGAM505 RNA, VGAM506 RNA, VGAM507 RNA,

VGAM508 RNA and VGAM509 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44344] VGAM504 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM504 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM504 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM504 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44345] VGAM505 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM505 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre- sponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM505 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM505 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44346] VGAM506 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM506 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM506 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM506 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44347] VGAM507 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM507 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM507 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM507 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44348] VGAM508 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM508 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM508 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM508 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44349] VGAM509 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM509 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM509 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM509 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44350] It is appreciated that a function of VGR3184 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3184 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3184 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3184 gene: VGAM504 host target protein, VGAM505 host target protein, VGAM506 host target protein, VGAM507 host target protein, VGAM508 host target protein and VGAM509 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TAR-

GET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM504, VGAM505, VGAM506, VGAM507, VGAM508 and VGAM509

[44351] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3185(VGR3185) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44352] VGR3185 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3185 gene was detected is described hereinabove with reference to Figs. 6-15.

[44353] VGR3185 gene encodes VGR3185 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44354] VGR3185 precursor RNA folds spatially, forming VGR3185 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3185 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3185 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44355] VGR3185 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM510 precursor RNA, VGAM511 precursor RNA, VGAM512 precursor RNA, VGAM513 precursor RNA and VGAM514 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44356] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM510 RNA, VGAM511 RNA, VGAM512 RNA, VGAM513 RNA and

VGAM514 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44357] VGAM510 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM510 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM510 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM510 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44358] VGAM511 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM511 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM511 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM511 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44359] VGAM512 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM512 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM512 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM512 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44360] VGAM513 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM513 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM513 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM513 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44361] VGAM514 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM514 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM514 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM514 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44362] It is appreciated that a function of VGR3185 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3185 gene include diagnosis, prevention and treatment of viral infection by

Camelpox virus. Specific functions, and accordingly utilities, of VGR3185 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3185 gene: VGAM510 host target protein, VGAM511 host target protein, VGAM512 host target protein, VGAM513 host target protein and VGAM514 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM510, VGAM511, VGAM512, VGAM513 and VGAM514

[44363] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3186(VGR3186) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44364] VGR3186 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3186 gene was detected is described hereinabove with reference to Figs. 6-15.

[44365] VGR3186 gene encodes VGR3186 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44366] VGR3186 precursor RNA folds spatially, forming VGR3186 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3186 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3186 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44367] VGR3186 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM515 precursor RNA, VGAM516 precursor RNA, VGAM517 precursor RNA and VGAM518 precursor RNA, herein schematically represented by VGAM1 PRE-

CURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44368] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM515 RNA, VGAM516 RNA, VGAM517 RNA and VGAM518 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44369] VGAM515 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM515 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM515 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM515 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[44370] VGAM516 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM516 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM516 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM516 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44371] VGAM517 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM517 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM517 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM517 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44372] VGAM518 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM518 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM518 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM518 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44373] It is appreciated that a function of VGR3186 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3186 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3186 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs com-

prised in the operon-like cluster of VGR3186 gene: VGAM515 host target protein, VGAM516 host target protein, VGAM517 host target protein and VGAM518 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM515, VGAM516, VGAM517 and VGAM518

[44374] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3187(VGR3187) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44375] VGR3187 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3187 gene was detected is described hereinabove with reference to Figs. 6-15.

[44376] VGR3187 gene encodes VGR3187 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[44377] VGR3187 precursor RNA folds spatially, forming VGR3187 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3187 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3187 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44378] VGR3187 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM519 precursor RNA, VGAM520 precursor RNA, VGAM521 precursor RNA, VGAM522 precursor RNA and VGAM523 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44379] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM519 RNA, VGAM520 RNA, VGAM521 RNA, VGAM522 RNA and VGAM523 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44380] VGAM519 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM519 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM519 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM519 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44381] VGAM520 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM520 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM520 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM520 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44382] VGAM521 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM521 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM521 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM521 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44383] VGAM522 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM522 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM522 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM522 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44384] VGAM523 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM523 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM523 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM523 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44385] It is appreciated that a function of VGR3187 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3187 gene include diagnosis, prevention and treatment of viral infection by Alcelaphine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3187 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3187 gene: VGAM519 host target protein, VGAM520 host target protein, VGAM521 host target protein, VGAM522 host target protein and VGAM523 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM519, VGAM520, VGAM521, VGAM522 and VGAM523

[44386] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3188(VGR3188) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[44387] VGR3188 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3188 gene was detected is described hereinabove with reference to Figs. 6-15.

[44388] VGR3188 gene encodes VGR3188 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44389] VGR3188 precursor RNA folds spatially, forming VGR3188 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3188 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3188 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44390] VGR3188 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM524 precursor RNA, VGAM525 precursor RNA, VGAM526 precursor RNA, VGAM527 precursor RNA and VGAM528 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44391] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM524 RNA, VGAM525 RNA, VGAM526 RNA, VGAM527 RNA and VGAM528 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44392] VGAM524 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM524 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM524 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM524 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44393] VGAM525 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM525 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM525 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM525 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44394] VGAM526 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM526 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM526 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM526 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44395] VGAM527 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM527 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM527 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM527 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44396] VGAM528 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM528 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM528 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM528 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44397] It is appreciated that a function of VGR3188 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3188 gene include diagnosis, prevention and treatment of viral infection by Murid herpesvirus 4. Specific functions, and accordingly utilities, of VGR3188 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3188 gene: VGAM524 host target protein, VGAM525 host target protein, VGAM526 host target protein, VGAM527 host target protein and VGAM528 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively.

The function of these host target genes is elaborated hereinabove with reference to VGAM524, VGAM525, VGAM526, VGAM527 and VGAM528

[44398] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3189(VGR3189) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44399] VGR3189 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3189 gene was detected is described hereinabove with reference to Figs. 6-15.

[44400] VGR3189 gene encodes VGR3189 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44401] VGR3189 precursor RNA folds spatially, forming VGR3189 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3189 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3189 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44402] VGR3189 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM529 precursor RNA, VGAM530 precursor RNA, VGAM531 precursor RNA, VGAM532 precursor RNA, VGAM533 precursor RNA and VGAM534 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44403] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM529 RNA, VGAM530 RNA, VGAM531 RNA, VGAM532 RNA,

VGAM533 RNA and VGAM534 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44404] VGAM529 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM529 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM529 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM529 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44405] VGAM530 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM530 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM530 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM530 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44406] VGAM531 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM531 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM531 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM531 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44407] VGAM532 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM532 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM532 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM532 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44408] VGAM533 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM533 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM533 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM533 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44409] VGAM534 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM534 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM534 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM534 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44410] It is appreciated that a function of VGR3189 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3189 gene include diagnosis, prevention and treatment of viral infection by Sulfolobus virus SIRV-1. Specific functions, and accordingly utilities, of VGR3189 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3189 gene: VGAM529 host target protein, VGAM530 host target protein, VGAM531 host target protein, VGAM532 host target protein, VGAM533 host target protein and VGAM534 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TAR-

GET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM529, VGAM530, VGAM531, VGAM532, VGAM533 and VGAM534

[44411] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3190(VGR3190) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44412] VGR3190 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3190 gene was detected is described hereinabove with reference to Figs. 6-15.

[44413] VGR3190 gene encodes VGR3190 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44414] VGR3190 precursor RNA folds spatially, forming VGR3190 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3190 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3190 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44415] VGR3190 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM535 precursor RNA, VGAM536 precursor RNA, VGAM537 precursor RNA, VGAM538 precursor RNA, VGAM539 precursor RNA and VGAM540 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44416] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM535

RNA, VGAM536 RNA, VGAM537 RNA, VGAM538 RNA, VGAM539 RNA and VGAM540 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44417] VGAM535 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM535 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM535 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM535 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44418] VGAM536 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM536 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM536 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM536 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44419] VGAM537 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM537 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM537 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM537 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44420] VGAM538 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM538 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM538 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM538 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44421] VGAM539 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM539 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM539 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM539 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44422] VGAM540 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM540 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM540 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM540 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44423] It is appreciated that a function of VGR3190 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3190 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3190 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3190 gene: VGAM535 host target protein, VGAM536 host target protein, VGAM537 host target protein, VGAM538 host target protein, VGAM539 host target protein and VGAM540 host target protein, herein schematically represented by

VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM535, VGAM536, VGAM537, VGAM538, VGAM539 and VGAM540

[44424] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3191(VGR3191) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44425] VGR3191 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3191 gene was detected is described hereinabove with reference to Figs. 6-15.

[44426] VGR3191 gene encodes VGR3191 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44427] VGR3191 precursor RNA folds spatially, forming VGR3191 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3191 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3191 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44428] VGR3191 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM541 precursor RNA and VGAM542 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44429] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM541 RNA and VGAM542 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively,

each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44430] VGAM541 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM541 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM541 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM541 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44431] VGAM542 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM542 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM542 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM542 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44432] It is appreciated that a function of VGR3191 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3191 gene include diagnosis, prevention and treatment of viral infection by Sulfolobus virus SIRV-1. Specific functions, and accordingly utilities, of VGR3191 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3191 gene: VGAM541 host target protein and VGAM542 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM541 and VGAM542

[44433] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3192(VGR3192) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44434] VGR3192 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3192 gene was detected is described hereinabove with reference to Figs. 6-15.

[44435] VGR3192 gene encodes VGR3192 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44436] VGR3192 precursor RNA folds spatially, forming VGR3192 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3192 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3192 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44437] VGR3192 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM543 precursor RNA, VGAM544 precursor RNA, VGAM545 precursor RNA, VGAM546 precursor RNA and VGAM547 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44438] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM543 RNA, VGAM544 RNA, VGAM545 RNA, VGAM546 RNA and VGAM547 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44439] VGAM543 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM543 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM543 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM543 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44440] VGAM544 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM544 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM544 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM544 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44441] VGAM545 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM545 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM545 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM545 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44442] VGAM546 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM546 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM546 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM546 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44443] VGAM547 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM547 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM547 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM547 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44444] It is appreciated that a function of VGR3192 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3192 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus C. Specific functions, and accordingly utilities, of VGR3192 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3192 gene: VGAM543 host target protein, VGAM544 host target protein, VGAM545 host target protein, VGAM546 host target protein and VGAM547 host target protein, herein

schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM543, VGAM544, VGAM545, VGAM546 and VGAM547

[44445] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3193(VGR3193) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44446] VGR3193 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3193 gene was detected is described hereinabove with reference to Figs. 6-15.

[44447] VGR3193 gene encodes VGR3193 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44448] VGR3193 precursor RNA folds spatially, forming VGR3193 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3193 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3193 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44449] VGR3193 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM548 precursor RNA and VGAM549 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44450] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM548 RNA and VGAM549 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively,

each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44451] VGAM548 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM548 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM548 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM548 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44452] VGAM549 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM549 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM549 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM549 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44453] It is appreciated that a function of VGR3193 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3193 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3193 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3193 gene: VGAM548 host target protein and VGAM549 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM548 and VGAM549

[44454] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3194(VGR3194) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44455] VGR3194 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3194 gene was detected is described hereinabove with reference to Figs. 6-15.

[44456] VGR3194 gene encodes VGR3194 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44457] VGR3194 precursor RNA folds spatially, forming VGR3194 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3194 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3194 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44458] VGR3194 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM550 precursor RNA, VGAM551 precursor RNA and VGAM552 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44459] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM550 RNA, VGAM551 RNA and VGAM552 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44460] VGAM550 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM550 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM550 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM550 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44461] VGAM551 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM551 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM551 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM551 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44462] VGAM552 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM552 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM552 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM552 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44463] It is appreciated that a function of VGR3194 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3194 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3194 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3194 gene: VGAM550 host target protein, VGAM551 host target protein and VGAM552 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM550, VGAM551 and VGAM552

[44464] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3195(VGR3195) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44465] VGR3195 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3195 gene was detected is described hereinabove with reference to Figs. 6-15.

[44466] VGR3195 gene encodes VGR3195 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44467] VGR3195 precursor RNA folds spatially, forming VGR3195 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3195 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3195 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44468] VGR3195 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM554 precursor RNA, VGAM555 precursor RNA, VGAM556 precursor RNA, VGAM557 precursor RNA and VGAM558 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44469] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM554 RNA, VGAM555 RNA, VGAM556 RNA, VGAM557 RNA and VGAM558 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44470] VGAM554 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM554 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM554 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM554 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44471] VGAM555 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM555 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM555 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM555 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[44472] VGAM556 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM556 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM556 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM556 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44473] VGAM557 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM557 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM557 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM557 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44474] VGAM558 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM558 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM558 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM558 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44475] It is appreciated that a function of VGR3195 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3195 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3195 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are in-

hibited by VGAM RNAs comprised in the operon-like cluster of VGR3195 gene: VGAM554 host target protein, VGAM555 host target protein, VGAM556 host target protein, VGAM557 host target protein and VGAM558 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM554, VGAM555, VGAM556, VGAM557 and VGAM558

[44476] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3196(VGR3196) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44477] VGR3196 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3196 gene was detected is described hereinabove with reference to Figs. 6-15.

[44478] VGR3196 gene encodes VGR3196 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44479] VGR3196 precursor RNA folds spatially, forming VGR3196 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3196 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3196 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44480] VGR3196 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM559 precursor RNA, VGAM560 precursor RNA, VGAM561 precursor RNA, VGAM562 precursor RNA, VGAM563 precursor RNA and VGAM564 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44481] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM559 RNA, VGAM560 RNA, VGAM561 RNA, VGAM562 RNA, VGAM563 RNA and VGAM564 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44482] VGAM559 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM559 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM559 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM559 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44483] VGAM560 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM560 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM560 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM560 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44484] VGAM561 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM561 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM561 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM561 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[44485] VGAM562 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM562 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM562 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM562 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44486] VGAM563 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM563 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM563 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM563 host target protein, herein schematically

represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44487] VGAM564 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM564 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM564 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM564 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44488] It is appreciated that a function of VGR3196 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3196 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3196 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are in-

hibited by VGAM RNAs comprised in the operon-like cluster of VGR3196 gene: VGAM559 host target protein, VGAM560 host target protein, VGAM561 host target protein, VGAM562 host target protein, VGAM563 host target protein and VGAM564 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM559, VGAM560, VGAM561, VGAM562, VGAM563 and VGAM564

[44489] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3197(VGR3197) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44490] VGR3197 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3197 gene was detected is described hereinabove with reference to Figs. 6-15.

[44491] VGR3197 gene encodes VGR3197 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44492] VGR3197 precursor RNA folds spatially, forming VGR3197 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3197 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3197 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44493] VGR3197 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM565 precursor RNA and VGAM566 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44494] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM565 RNA and VGAM566 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44495] VGAM565 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM565 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM565 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM565 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44496] VGAM566 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM566 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM566 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM566 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44497] It is appreciated that a function of VGR3197 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3197 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3197 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3197 gene: VGAM565 host target protein and VGAM566 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM565 and

VGAM566

[44498] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3198(VGR3198) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44499] VGR3198 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3198 gene was detected is described hereinabove with reference to Figs. 6-15.

[44500] VGR3198 gene encodes VGR3198 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44501] VGR3198 precursor RNA folds spatially, forming VGR3198 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3198 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3198 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44502] VGR3198 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM567 precursor RNA, VGAM568 precursor RNA, VGAM569 precursor RNA, VGAM570 precursor RNA, VGAM571 precursor RNA, VGAM572 precursor RNA, VGAM573 precursor RNA and VGAM574 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44503] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM567 RNA, VGAM568 RNA, VGAM569 RNA, VGAM570 RNA,

VGAM571 RNA, VGAM572 RNA, VGAM573 RNA and VGAM574 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44504] VGAM567 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM567 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM567 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM567 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44505] VGAM568 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM568 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM568 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM568 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44506] VGAM569 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM569 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM569 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM569 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44507] VGAM570 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM570 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM570 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM570 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44508] VGAM571 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM571 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM571 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM571 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44509] VGAM572 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM572 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM572 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM572 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44510] VGAM573 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM573 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM573 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM573 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44511] VGAM574 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding

site located in an untranslated region of VGAM574 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM574 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM574 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44512] It is appreciated that a function of VGR3198 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3198 gene include diagnosis, prevention and treatment of viral infection by Infectious hypodermal and hematopoietic necrosis virus. Specific functions, and accordingly utilities, of VGR3198 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3198 gene: VGAM567 host target protein, VGAM568 host target protein, VGAM569 host target protein, VGAM570 host target protein,

VGAM571 host target protein, VGAM572 host target protein, VGAM573 host target protein and VGAM574 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM567, VGAM568, VGAM569, VGAM570, VGAM571, VGAM572, VGAM573 and VGAM574

[44513] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3199(VGR3199) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44514] VGR3199 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3199 gene was detected is described hereinabove with reference to Figs. 6-15.

[44515] VGR3199 gene encodes VGR3199 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[44516] VGR3199 precursor RNA folds spatially, forming VGR3199 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3199 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3199 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44517] VGR3199 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM575 precursor RNA, VGAM576 precursor RNA and VGAM577 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44518] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM575 RNA, VGAM576 RNA and VGAM577 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44519] VGAM575 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM575 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM575 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM575 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44520] VGAM576 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM576 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM576 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM576 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44521] VGAM577 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM577 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM577 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM577 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44522] It is appreciated that a function of VGR3199 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3199 gene include diagnosis, prevention and treatment of viral infection by

Infectious hypodermal and hematopoietic necrosis virus. Specific functions, and accordingly utilities, of VGR3199 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3199 gene: VGAM575 host target protein, VGAM576 host target protein and VGAM577 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM575, VGAM576 and VGAM577

[44523] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3200(VGR3200) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44524] VGR3200 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3200 gene was

detected is described hereinabove with reference to Figs. 6-15.

[44525] VGR3200 gene encodes VGR3200 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44526] VGR3200 precursor RNA folds spatially, forming VGR3200 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3200 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3200 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44527] VGR3200 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM578 precursor RNA, VGAM579 precursor RNA, VGAM580 precursor RNA, VGAM581 precursor RNA, VGAM582 precursor RNA, VGAM583 precursor RNA, VGAM584 precursor RNA and VGAM585 precursor RNA,

herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44528] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM578 RNA, VGAM579 RNA, VGAM580 RNA, VGAM581 RNA, VGAM582 RNA, VGAM583 RNA, VGAM584 RNA and VGAM585 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44529] VGAM578 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM578 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM578 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM578 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44530] VGAM579 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM579 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM579 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM579 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44531] VGAM580 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM580 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM580 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM580 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44532] VGAM581 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM581 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM581 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM581 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44533] VGAM582 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM582 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM582 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM582 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44534] VGAM583 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM583 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM583 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM583 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44535] VGAM584 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM584 host

target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM584 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM584 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44536] VGAM585 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM585 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM585 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM585 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44537] It is appreciated that a function of VGR3200 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3200 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 90. Specific functions, and accordingly utilities, of VGR3200 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3200 gene: VGAM578 host target protein, VGAM579 host target protein, VGAM580 host target protein, VGAM581 host target protein, VGAM582 host target protein, VGAM583 host target protein, VGAM584 host target protein and VGAM585 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM578, VGAM579, VGAM580, VGAM581, VGAM582, VGAM583, VGAM584 and VGAM585

[44538] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3201(VGR3201) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44539] VGR3201 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3201 gene was detected is described hereinabove with reference to Figs. 6-15.

[44540] VGR3201 gene encodes VGR3201 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44541] VGR3201 precursor RNA folds spatially, forming VGR3201 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3201 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3201 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44542] VGR3201 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM586 precursor RNA, VGAM587 precursor RNA and VGAM588 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44543] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM586 RNA, VGAM587 RNA and VGAM588 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44544] VGAM586 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM586 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM586 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM586 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44545] VGAM587 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM587 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM587 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM587 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44546] VGAM588 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM588 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM588 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM588 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44547] It is appreciated that a function of VGR3201 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3201 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 90. Specific functions, and accordingly utilities, of VGR3201 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3201 gene: VGAM586 host target protein, VGAM587 host target protein and VGAM588 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM586, VGAM587 and VGAM588

[44548] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3202(VGR3202) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44549] VGR3202 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3202 gene was detected is described hereinabove with reference to Figs. 6-15.

[44550] VGR3202 gene encodes VGR3202 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44551] VGR3202 precursor RNA folds spatially, forming VGR3202 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3202 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3202 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44552] VGR3202 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM589 precursor RNA, VGAM590 precursor RNA, VGAM591 precursor RNA, VGAM592 precursor RNA, VGAM593 precursor RNA and VGAM594 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44553] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM589 RNA, VGAM590 RNA, VGAM591 RNA, VGAM592 RNA, VGAM593 RNA and VGAM594 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA

respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44554] VGAM589 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM589 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM589 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM589 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44555] VGAM590 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM590 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM590 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM590 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44556] VGAM591 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM591 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM591 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM591 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44557] VGAM592 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM592 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM592 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM592 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44558] VGAM593 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM593 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM593 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM593 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44559] VGAM594 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM594 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM594 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM594 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44560] It is appreciated that a function of VGR3202 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3202 gene include diagnosis, prevention and treatment of viral infection by Infectious spleen and kidney necrosis virus. Specific functions, and accordingly utilities, of VGR3202 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3202 gene: VGAM589 host target protein, VGAM590 host target protein, VGAM591 host target protein, VGAM592 host target protein, VGAM593 host target protein and VGAM594 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM589, VGAM590,

VGAM591, VGAM592, VGAM593 and VGAM594

[44561] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3203(VGR3203) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44562] VGR3203 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3203 gene was detected is described hereinabove with reference to Figs. 6-15.

[44563] VGR3203 gene encodes VGR3203 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44564] VGR3203 precursor RNA folds spatially, forming VGR3203 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3203 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3203 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44565] VGR3203 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM595 precursor RNA, VGAM596 precursor RNA, VGAM597 precursor RNA, VGAM598 precursor RNA, VGAM599 precursor RNA and VGAM600 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44566] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM595 RNA, VGAM596 RNA, VGAM597 RNA, VGAM598 RNA, VGAM599 RNA and VGAM600 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA,

VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44567] VGAM595 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM595 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM595 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM595 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44568] VGAM596 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM596 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM596 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM596 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44569] VGAM597 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM597 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM597 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM597 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44570] VGAM598 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM598 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM598 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM598 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44571] VGAM599 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM599 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM599 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM599 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44572] VGAM600 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM600 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM600 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM600 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44573] It is appreciated that a function of VGR3203 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3203 gene include diagnosis, prevention and treatment of viral infection by Equine rhinovirus 3. Specific functions, and accordingly utilities, of VGR3203 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3203 gene: VGAM595 host target protein, VGAM596 host target protein, VGAM597 host target protein, VGAM598 host target protein, VGAM599 host target protein and VGAM600 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM595, VGAM596, VGAM597, VGAM598, VGAM599 and VGAM600

[44574] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3204(VGR3204) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44575] VGR3204 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3204 gene was detected is described hereinabove with reference to Figs. 6-15.

[44576] VGR3204 gene encodes VGR3204 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44577] VGR3204 precursor RNA folds spatially, forming VGR3204 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3204 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3204 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44578] VGR3204 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM601 precursor RNA, VGAM602 precursor RNA, VGAM603 precursor RNA and VGAM604 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44579] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM601 RNA, VGAM602 RNA, VGAM603 RNA and VGAM604 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[44580] VGAM601 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM601 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM601 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM601 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44581] VGAM602 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM602 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM602 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM602 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44582] VGAM603 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM603 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM603 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM603 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44583] VGAM604 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM604 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM604 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM604 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44584] It is appreciated that a function of VGR3204 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3204 gene include diagnosis, prevention and treatment of viral infection by Fowl adenovirus D. Specific functions, and accordingly utilities, of VGR3204 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3204 gene: VGAM601 host target protein, VGAM602 host target protein, VGAM603 host target protein and VGAM604 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM601, VGAM602, VGAM603 and VGAM604

[44585] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3205(VGR3205) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44586] VGR3205 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3205 gene was detected is described hereinabove with reference to Figs. 6-15.

[44587] VGR3205 gene encodes VGR3205 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44588] VGR3205 precursor RNA folds spatially, forming VGR3205 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3205 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3205 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[44589] VGR3205 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM605 precursor RNA, VGAM606 precursor RNA, VGAM607 precursor RNA, VGAM608 precursor RNA, VGAM609 precursor RNA, VGAM610 precursor RNA, VGAM611 precursor RNA and VGAM612 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44590] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM605 RNA, VGAM606 RNA, VGAM607 RNA, VGAM608 RNA, VGAM609 RNA, VGAM610 RNA, VGAM611 RNA and VGAM612 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44591] VGAM605 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM605 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM605 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM605 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44592] VGAM606 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM606 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM606 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM606 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44593] VGAM607 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM607 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM607 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM607 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44594] VGAM608 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM608 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM608 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM608 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44595] VGAM609 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM609 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM609 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM609 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44596] VGAM610 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM610 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM610 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM610 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44597] VGAM611 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM611 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM611 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM611 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44598] VGAM612 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM612 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM612 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM612 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44599] It is appreciated that a function of VGR3205 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3205 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3205 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3205 gene: VGAM605 host target protein, VGAM606 host target protein, VGAM607 host target protein, VGAM608 host target protein, VGAM609 host target protein, VGAM610 host target protein, VGAM611 host target protein and VGAM612 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host tar-

get genes is elaborated hereinabove with reference to VGAM605, VGAM606, VGAM607, VGAM608, VGAM609, VGAM610, VGAM611 and VGAM612

[44600] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3206(VGR3206) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44601] VGR3206 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3206 gene was detected is described hereinabove with reference to Figs. 6-15.

[44602] VGR3206 gene encodes VGR3206 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44603] VGR3206 precursor RNA folds spatially, forming VGR3206 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3206 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3206 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44604] VGR3206 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM613 precursor RNA and VGAM614 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44605] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM613 RNA and VGAM614 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44606] VGAM613 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM613 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM613 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM613 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44607] VGAM614 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM614 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM614 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM614 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[44608] It is appreciated that a function of VGR3206 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3206 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3206 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3206 gene: VGAM613 host target protein and VGAM614 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM613 and VGAM614

[44609] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3207(VGR3207) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[44610] VGR3207 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3207 gene was detected is described hereinabove with reference to Figs. 6-15.

[44611] VGR3207 gene encodes VGR3207 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44612] VGR3207 precursor RNA folds spatially, forming VGR3207 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3207 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3207 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44613] VGR3207 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM615 precursor RNA, VGAM616 precursor RNA, VGAM617 precursor RNA, VGAM618 precursor RNA, VGAM619 precursor RNA, VGAM620 precursor RNA, VGAM621 precursor RNA and VGAM622 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44614] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM615 RNA, VGAM616 RNA, VGAM617 RNA, VGAM618 RNA, VGAM619 RNA, VGAM620 RNA, VGAM621 RNA and VGAM622 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44615] VGAM615 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM615 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM615 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM615 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44616] VGAM616 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM616 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM616 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM616 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44617] VGAM617 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM617 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM617 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM617 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44618] VGAM618 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM618 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM618 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM618 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[44619] VGAM619 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM619 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM619 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM619 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44620] VGAM620 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM620 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM620 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM620 host target protein, herein schematically

represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44621] VGAM621 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM621 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM621 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM621 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44622] VGAM622 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM622 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM622 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA

into VGAM622 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44623] It is appreciated that a function of VGR3207 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3207 gene include diagnosis, prevention and treatment of viral infection by African swine fever virus. Specific functions, and accordingly utilities, of VGR3207 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3207 gene: VGAM615 host target protein, VGAM616 host target protein, VGAM617 host target protein, VGAM618 host target protein, VGAM619 host target protein, VGAM620 host target protein, VGAM621 host target protein and VGAM622 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM615, VGAM616, VGAM617, VGAM618, VGAM619, VGAM620, VGAM621 and VGAM622

[44624] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3208(VGR3208) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44625] VGR3208 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3208 gene was detected is described hereinabove with reference to Figs. 6-15.

[44626] VGR3208 gene encodes VGR3208 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44627] VGR3208 precursor RNA folds spatially, forming VGR3208 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3208 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3208 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44628] VGR3208 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM623 precursor RNA, VGAM624 precursor RNA, VGAM625 precursor RNA and VGAM626 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44629] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM623 RNA, VGAM624 RNA, VGAM625 RNA and VGAM626 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44630] VGAM623 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM623 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM623 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM623 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44631] VGAM624 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM624 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM624 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM624 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44632] VGAM625 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM625 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM625 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM625 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44633] VGAM626 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM626 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM626 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM626 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[44634] It is appreciated that a function of VGR3208 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3208 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3208 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3208 gene: VGAM623 host target protein, VGAM624 host target protein, VGAM625 host target protein and VGAM626 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM623, VGAM624, VGAM625 and VGAM626

[44635] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3209(VGR3209) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44636] VGR3209 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3209 gene was detected is described hereinabove with reference to Figs. 6-15.

[44637] VGR3209 gene encodes VGR3209 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44638] VGR3209 precursor RNA folds spatially, forming VGR3209 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3209 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3209 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44639] VGR3209 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM627 precursor RNA, VGAM628 precursor RNA, VGAM629 precursor RNA, VGAM630 precursor RNA, VGAM631 precursor RNA, VGAM632 precursor RNA, VGAM633 precursor RNA and VGAM634 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44640] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM627 RNA, VGAM628 RNA, VGAM629 RNA, VGAM630 RNA, VGAM631 RNA, VGAM632 RNA, VGAM633 RNA and VGAM634 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44641] VGAM627 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM627 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM627 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM627 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44642] VGAM628 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM628 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM628 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM628 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[44643] VGAM629 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM629 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM629 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM629 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44644] VGAM630 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM630 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM630 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM630 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44645] VGAM631 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM631 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM631 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM631 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44646] VGAM632 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM632 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM632 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM632 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44647] VGAM633 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM633 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM633 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM633 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44648] VGAM634 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM634 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM634 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM634 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44649] It is appreciated that a function of VGR3209 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3209 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 4. Specific functions, and accordingly utilities, of VGR3209 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3209 gene: VGAM627 host target protein, VGAM628 host target protein, VGAM629 host target protein, VGAM630 host target protein, VGAM631 host target protein, VGAM632 host target protein, VGAM633 host target protein and VGAM634 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM627, VGAM628, VGAM629, VGAM630, VGAM631,

VGAM632, VGAM633 and VGAM634

[44650] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3210(VGR3210) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44651] VGR3210 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3210 gene was detected is described hereinabove with reference to Figs. 6-15.

[44652] VGR3210 gene encodes VGR3210 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44653] VGR3210 precursor RNA folds spatially, forming VGR3210 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3210 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3210 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44654] VGR3210 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM635 precursor RNA and VGAM636 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44655] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM635 RNA and VGAM636 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44656] VGAM635 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM635 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM635 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM635 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44657] VGAM636 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM636 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM636 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM636 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44658] It is appreciated that a function of VGR3210 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3210 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 4. Specific functions, and accordingly utilities, of VGR3210 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3210 gene: VGAM635 host target protein and VGAM636 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM635 and VGAM636

[44659] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3211(VGR3211) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44660] VGR3211 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3211 gene was detected is described hereinabove with reference to Figs. 6-15.

[44661] VGR3211 gene encodes VGR3211 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44662] VGR3211 precursor RNA folds spatially, forming VGR3211 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3211 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3211 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44663] VGR3211 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM637 precursor RNA, VGAM638 precur-

sor RNA, VGAM639 precursor RNA and VGAM640 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44664] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM637 RNA, VGAM638 RNA, VGAM639 RNA and VGAM640 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44665] VGAM637 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM637 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM637 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM637 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44666] VGAM638 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM638 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM638 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM638 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44667] VGAM639 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM639 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM639 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM639 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44668] VGAM640 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM640 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM640 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM640 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44669] It is appreciated that a function of VGR3211 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3211 gene include diagnosis, prevention and treatment of viral infection by Cherry mottle leaf virus. Specific functions, and accordingly utilities, of VGR3211 gene, herein designated VGR

GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3211 gene: VGAM637 host target protein, VGAM638 host target protein, VGAM639 host target protein and VGAM640 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM637, VGAM638, VGAM639 and VGAM640

[44670] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3212(VGR3212) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44671] VGR3212 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3212 gene was detected is described hereinabove with reference to Figs. 6-15.

[44672] VGR3212 gene encodes VGR3212 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44673] VGR3212 precursor RNA folds spatially, forming VGR3212 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3212 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3212 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44674] VGR3212 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM641 precursor RNA, VGAM642 precursor RNA, VGAM643 precursor RNA, VGAM644 precursor RNA, VGAM645 precursor RNA, VGAM646 precursor RNA, VGAM647 precursor RNA and VGAM648 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRE-

CURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44675] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM641 RNA, VGAM642 RNA, VGAM643 RNA, VGAM644 RNA, VGAM645 RNA, VGAM646 RNA, VGAM647 RNA and VGAM648 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44676] VGAM641 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM641 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM641 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM641 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44677] VGAM642 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM642 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM642 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM642 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44678] VGAM643 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM643 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM643 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM643 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44679] VGAM644 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM644 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM644 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM644 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44680] VGAM645 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM645 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM645 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM645 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44681] VGAM646 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM646 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM646 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM646 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44682] VGAM647 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM647 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM647 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM647 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44683] VGAM648 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM648 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM648 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM648 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44684] It is appreciated that a function of VGR3212 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3212 gene include

diagnosis, prevention and treatment of viral infection by Macaca mulatta rhadinovirus. Specific functions, and accordingly utilities, of VGR3212 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3212 gene: VGAM641 host target protein, VGAM642 host target protein, VGAM643 host target protein, VGAM644 host target protein, VGAM645 host target protein, VGAM646 host target protein, VGAM647 host target protein and VGAM648 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM641, VGAM642, VGAM643, VGAM644, VGAM645, VGAM646, VGAM647 and VGAM648

[44685] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3213(VGR3213) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[44686] VGR3213 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3213 gene was detected is described hereinabove with reference to Figs. 6-15.

[44687] VGR3213 gene encodes VGR3213 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44688] VGR3213 precursor RNA folds spatially, forming VGR3213 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3213 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3213 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44689] VGR3213 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM649 precursor RNA, VGAM650 precursor RNA and VGAM651 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44690] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM649 RNA, VGAM650 RNA and VGAM651 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44691] VGAM649 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM649 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM649 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM649 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44692] VGAM650 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM650 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM650 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM650 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44693] VGAM651 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM651 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM651 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM651 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44694] It is appreciated that a function of VGR3213 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3213 gene include diagnosis, prevention and treatment of viral infection by Macaca mulatta rhadinovirus. Specific functions, and accordingly utilities, of VGR3213 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3213 gene: VGAM649 host target protein, VGAM650 host target protein and VGAM651 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM649, VGAM650 and VGAM651

[44695] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3214(VGR3214) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44696] VGR3214 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3214 gene was detected is described hereinabove with reference to Figs. 6-15.

[44697] VGR3214 gene encodes VGR3214 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44698] VGR3214 precursor RNA folds spatially, forming VGR3214 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3214 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3214 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44699] VGR3214 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM653 precursor RNA, VGAM654 precursor RNA, VGAM655 precursor RNA, VGAM656 precursor RNA, VGAM657 precursor RNA, VGAM658 precursor RNA, VGAM659 precursor RNA and VGAM660 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44700] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM653 RNA, VGAM654 RNA, VGAM655 RNA, VGAM656 RNA, VGAM657 RNA, VGAM658 RNA, VGAM659 RNA and VGAM660 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44701] VGAM653 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM653 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM653 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM653 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44702] VGAM654 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM654 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM654 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM654 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44703] VGAM655 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM655 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM655 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM655 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44704] VGAM656 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM656 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM656 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM656 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44705] VGAM657 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM657 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM657 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM657 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44706] VGAM658 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM658 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM658 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM658 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44707] VGAM659 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM659 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM659 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM659 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44708] VGAM660 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM660 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM660 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM660 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44709] It is appreciated that a function of VGR3214 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3214 gene include diagnosis, prevention and treatment of viral infection by Simian immunodeficiency virus. Specific functions, and accordingly utilities, of VGR3214 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3214 gene: VGAM653 host target protein, VGAM654 host target protein, VGAM655 host target protein, VGAM656 host target protein, VGAM657 host target protein, VGAM658 host target protein, VGAM659 host target protein and VGAM660 host target protein, herein schematically represented by VGAM1 HOST TARGET PRO-

TEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM653, VGAM654, VGAM655, VGAM656, VGAM657, VGAM658, VGAM659 and VGAM660

[44710] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3215(VGR3215) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44711] VGR3215 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3215 gene was detected is described hereinabove with reference to Figs. 6-15.

[44712] VGR3215 gene encodes VGR3215 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44713] VGR3215 precursor RNA folds spatially, forming VGR3215 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3215 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3215 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44714] VGR3215 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM661 precursor RNA and VGAM662 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44715] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM661 RNA and VGAM662 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively,

each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44716] VGAM661 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM661 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM661 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM661 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44717] VGAM662 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM662 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM662 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM662 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44718] It is appreciated that a function of VGR3215 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3215 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3215 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3215 gene: VGAM661 host target protein and VGAM662 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM661 and VGAM662

[44719] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3216(VGR3216) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44720] VGR3216 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3216 gene was detected is described hereinabove with reference to Figs. 6-15.

[44721] VGR3216 gene encodes VGR3216 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44722] VGR3216 precursor RNA folds spatially, forming VGR3216 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3216 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3216 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44723] VGR3216 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM663 precursor RNA, VGAM664 precursor RNA, VGAM665 precursor RNA, VGAM666 precursor RNA, VGAM667 precursor RNA, VGAM668 precursor RNA, VGAM669 precursor RNA and VGAM670 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44724] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM663 RNA, VGAM664 RNA, VGAM665 RNA, VGAM666 RNA, VGAM667 RNA, VGAM668 RNA, VGAM669 RNA and VGAM670 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs correspond-

ing to VGAM RNA of Fig. 8.

[44725] VGAM663 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM663 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM663 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM663 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44726] VGAM664 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM664 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM664 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM664 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44727] VGAM665 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM665 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM665 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM665 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44728] VGAM666 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM666 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM666 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM666 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44729] VGAM667 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM667 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM667 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM667 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44730] VGAM668 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM668 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM668 host target RNA, herein

schematically represented by VGAM6 HOST TARGET RNA into VGAM668 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[44731] VGAM669 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM669 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM669 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM669 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[44732] VGAM670 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM670 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM670 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM670 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[44733] It is appreciated that a function of VGR3216 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3216 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3216 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3216 gene: VGAM663 host target protein, VGAM664 host target protein, VGAM665 host target protein, VGAM666 host target protein, VGAM667 host target protein, VGAM668 host target protein, VGAM669 host target protein and VGAM670 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM663, VGAM664, VGAM665, VGAM666, VGAM667, VGAM668, VGAM669 and VGAM670

[44734] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3217(VGR3217) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44735] VGR3217 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3217 gene was detected is described hereinabove with reference to Figs. 6-15.

[44736] VGR3217 gene encodes VGR3217 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44737] VGR3217 precursor RNA folds spatially, forming VGR3217 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3217 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3217 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44738] VGR3217 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM672 precursor RNA, VGAM673 precursor RNA and VGAM674 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44739] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM672 RNA, VGAM673 RNA and VGAM674 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44740] VGAM672 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM672 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM672 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM672 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44741] VGAM673 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM673 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM673 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM673 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44742] VGAM674 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM674 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM674 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM674 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44743] It is appreciated that a function of VGR3217 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3217 gene include diagnosis, prevention and treatment of viral infection by Equine rhinitis B virus. Specific functions, and accordingly utilities, of VGR3217 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3217 gene: VGAM672 host target protein, VGAM673 host target pro-

tein and VGAM674 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM672, VGAM673 and VGAM674

[44744] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3218(VGR3218) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44745] VGR3218 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3218 gene was detected is described hereinabove with reference to Figs. 6-15.

[44746] VGR3218 gene encodes VGR3218 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44747] VGR3218 precursor RNA folds spatially, forming VGR3218

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3218 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3218 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44748] VGR3218 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM675 precursor RNA, VGAM676 precursor RNA, VGAM677 precursor RNA and VGAM678 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44749] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM675

RNA, VGAM676 RNA, VGAM677 RNA and VGAM678 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44750] VGAM675 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM675 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM675 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM675 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44751] VGAM676 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM676 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM676 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM676 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44752] VGAM677 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM677 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM677 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM677 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44753] VGAM678 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM678 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM678 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM678 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44754] It is appreciated that a function of VGR3218 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3218 gene include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3218 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3218 gene: VGAM675 host target protein, VGAM676 host target protein, VGAM677 host target protein and VGAM678 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM675, VGAM676, VGAM677 and VGAM678

[44755] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3219(VGR3219) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44756] VGR3219 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3219 gene was detected is described hereinabove with reference to Figs. 6-15.

[44757] VGR3219 gene encodes VGR3219 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44758] VGR3219 precursor RNA folds spatially, forming VGR3219 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3219 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3219 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44759] VGR3219 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM679 precursor RNA and VGAM680 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44760] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM679 RNA and VGAM680 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44761] VGAM679 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM679 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM679 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM679 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44762] VGAM680 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM680 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM680 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM680 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44763] It is appreciated that a function of VGR3219 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3219 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3219 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3219 gene: VGAM679 host target protein and VGAM680 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM679 and VGAM680

[44764] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3220(VGR3220) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44765] VGR3220 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3220 gene was detected is described hereinabove with reference to Figs. 6-15.

[44766] VGR3220 gene encodes VGR3220 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44767] VGR3220 precursor RNA folds spatially, forming VGR3220 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3220 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3220 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44768] VGR3220 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM681 precursor RNA and VGAM682 pre-

cursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44769] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM681 RNA and VGAM682 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44770] VGAM681 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM681 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM681 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM681 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[44771] VGAM682 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM682 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM682 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM682 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44772] It is appreciated that a function of VGR3220 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3220 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3220 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3220 gene:

VGAM681 host target protein and VGAM682 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM681 and VGAM682

[44773] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3221(VGR3221) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44774] VGR3221 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3221 gene was detected is described hereinabove with reference to Figs. 6-15.

[44775] VGR3221 gene encodes VGR3221 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44776] VGR3221 precursor RNA folds spatially, forming VGR3221

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3221 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3221 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44777] VGR3221 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM683 precursor RNA, VGAM684 precursor RNA, VGAM685 precursor RNA and VGAM686 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44778] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM683

RNA, VGAM684 RNA, VGAM685 RNA and VGAM686 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44779] VGAM683 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM683 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM683 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM683 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44780] VGAM684 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM684 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM684 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM684 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44781] VGAM685 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM685 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM685 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM685 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44782] VGAM686 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM686 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM686 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM686 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44783] It is appreciated that a function of VGR3221 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3221 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3221 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3221 gene: VGAM683 host target protein, VGAM684 host target protein, VGAM685 host target protein and VGAM686 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM683, VGAM684, VGAM685 and VGAM686

[44784] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3222(VGR3222) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44785] VGR3222 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3222 gene was detected is described hereinabove with reference to Figs. 6-15.

[44786] VGR3222 gene encodes VGR3222 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44787] VGR3222 precursor RNA folds spatially, forming VGR3222 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3222 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3222 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44788] VGR3222 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM687 precursor RNA, VGAM688 precursor RNA, VGAM689 precursor RNA, VGAM690 precursor RNA and VGAM691 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44789] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM687 RNA, VGAM688 RNA, VGAM689 RNA, VGAM690 RNA and VGAM691 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM

RNAs corresponding to VGAM RNA of Fig. 8.

[44790] VGAM687 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM687 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM687 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM687 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44791] VGAM688 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM688 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM688 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM688 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44792] VGAM689 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM689 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM689 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM689 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44793] VGAM690 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM690 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM690 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM690 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44794] VGAM691 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM691 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM691 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM691 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44795] It is appreciated that a function of VGR3222 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3222 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3222 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of

the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3222 gene: VGAM687 host target protein, VGAM688 host target protein, VGAM689 host target protein, VGAM690 host target protein and VGAM691 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM687, VGAM688, VGAM689, VGAM690 and VGAM691

[44796] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3223(VGR3223) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44797] VGR3223 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3223 gene was detected is described hereinabove with reference to Figs. 6-15.

[44798] VGR3223 gene encodes VGR3223 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44799] VGR3223 precursor RNA folds spatially, forming VGR3223 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3223 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3223 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44800] VGR3223 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM692 precursor RNA, VGAM693 precursor RNA and VGAM694 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44801] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM692 RNA, VGAM693 RNA and VGAM694 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44802] VGAM692 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM692 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM692 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM692 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44803] VGAM693 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM693 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM693 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM693 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44804] VGAM694 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM694 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM694 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM694 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44805] It is appreciated that a function of VGR3223 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3223 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3223 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3223 gene: VGAM692 host target protein, VGAM693 host target protein and VGAM694 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM692, VGAM693 and VGAM694

[44806] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3224(VGR3224) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44807] VGR3224 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3224 gene was detected is described hereinabove with reference to Figs. 6-15.

[44808] VGR3224 gene encodes VGR3224 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44809] VGR3224 precursor RNA folds spatially, forming VGR3224 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3224 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3224 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44810] VGR3224 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM696 precursor RNA, VGAM697 precursor RNA and VGAM698 precursor RNA, herein schemati-

cally represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44811] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM696 RNA, VGAM697 RNA and VGAM698 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44812] VGAM696 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM696 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM696 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM696 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44813] VGAM697 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM697 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM697 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM697 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44814] VGAM698 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM698 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM698 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM698 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[44815] It is appreciated that a function of VGR3224 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3224 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3224 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3224 gene: VGAM696 host target protein, VGAM697 host target protein and VGAM698 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM696, VGAM697 and VGAM698

[44816] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3225(VGR3225) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44817] VGR3225 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3225 gene was detected is described hereinabove with reference to Figs. 6-15.

[44818] VGR3225 gene encodes VGR3225 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44819] VGR3225 precursor RNA folds spatially, forming VGR3225 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3225 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3225 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44820] VGR3225 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM700 precursor RNA and VGAM701 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44821] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM700 RNA and VGAM701 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44822] VGAM700 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM700 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM700 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM700 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44823] VGAM701 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM701 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM701 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM701 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44824] It is appreciated that a function of VGR3225 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3225 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3225 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3225 gene: VGAM700 host target protein and VGAM701 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM700 and VGAM701

[44825] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3226(VGR3226) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44826] VGR3226 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3226 gene was detected is described hereinabove with reference to Figs. 6-15.

[44827] VGR3226 gene encodes VGR3226 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44828] VGR3226 precursor RNA folds spatially, forming VGR3226 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3226 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3226 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44829] VGR3226 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM703 precursor RNA and VGAM704 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44830] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM703 RNA and VGAM704 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44831] VGAM703 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM703 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM703 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM703 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44832] VGAM704 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM704 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM704 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM704 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44833] It is appreciated that a function of VGR3226 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3226 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3226 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3226 gene: VGAM703 host target protein and VGAM704 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM703 and VGAM704

[44834] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3227(VGR3227) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44835] VGR3227 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3227 gene was detected is described hereinabove with reference to Figs. 6-15.

[44836] VGR3227 gene encodes VGR3227 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44837] VGR3227 precursor RNA folds spatially, forming VGR3227 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3227 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3227 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44838] VGR3227 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM706 precursor RNA and VGAM707 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44839] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM706 RNA and VGAM707 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44840] VGAM706 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM706 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM706 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM706 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44841] VGAM707 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM707 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM707 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM707 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44842] It is appreciated that a function of VGR3227 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3227 gene include diagnosis, prevention and treatment of viral infection by Lettuce infectious yellows virus. Specific functions, and accordingly utilities, of VGR3227 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3227 gene: VGAM706 host target protein and VGAM707 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM706 and VGAM707

[44843] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3228(VGR3228) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44844] VGR3228 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3228 gene was detected is described hereinabove with reference to Figs. 6-15.

[44845] VGR3228 gene encodes VGR3228 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44846] VGR3228 precursor RNA folds spatially, forming VGR3228 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3228 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3228 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44847] VGR3228 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM708 precursor RNA and VGAM709 precursor RNA, herein schematically represented by VGAM1

PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44848] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM708 RNA and VGAM709 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44849] VGAM708 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM708 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM708 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM708 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44850] VGAM709 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM709 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM709 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM709 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44851] It is appreciated that a function of VGR3228 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3228 gene include diagnosis, prevention and treatment of viral infection by Equine rhinitis A virus. Specific functions, and accordingly utilities, of VGR3228 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3228 gene: VGAM708 host target protein and VGAM709 host target

protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM708 and VGAM709

[44852] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3229(VGR3229) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44853] VGR3229 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3229 gene was detected is described hereinabove with reference to Figs. 6-15.

[44854] VGR3229 gene encodes VGR3229 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44855] VGR3229 precursor RNA folds spatially, forming VGR3229 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3229 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3229 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44856] VGR3229 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM710 precursor RNA, VGAM711 precursor RNA and VGAM712 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44857] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM710

RNA, VGAM711 RNA and VGAM712 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44858] VGAM710 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM710 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM710 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM710 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44859] VGAM711 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM711 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM711 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM711 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44860] VGAM712 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM712 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM712 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM712 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44861] It is appreciated that a function of VGR3229 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3229 gene include diagnosis, prevention and treatment of viral infection by Myxoma virus. Specific functions, and accordingly utilities,

of VGR3229 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3229 gene: VGAM710 host target protein, VGAM711 host target protein and VGAM712 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM710, VGAM711 and VGAM712

[44862] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3230(VGR3230) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44863] VGR3230 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3230 gene was detected is described hereinabove with reference to Figs.

6-15.

[44864] VGR3230 gene encodes VGR3230 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44865] VGR3230 precursor RNA folds spatially, forming VGR3230 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3230 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3230 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44866] VGR3230 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM713 precursor RNA, VGAM714 precursor RNA, VGAM715 precursor RNA, VGAM716 precursor RNA and VGAM717 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRE-

CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44867] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM713 RNA, VGAM714 RNA, VGAM715 RNA, VGAM716 RNA and VGAM717 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44868] VGAM713 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM713 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM713 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM713 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44869] VGAM714 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM714 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM714 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM714 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44870] VGAM715 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM715 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM715 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM715 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[44871] VGAM716 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM716 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM716 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM716 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44872] VGAM717 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM717 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM717 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM717 host target protein, herein schematically

represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[44873] It is appreciated that a function of VGR3230 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3230 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3230 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3230 gene: VGAM713 host target protein, VGAM714 host target protein, VGAM715 host target protein, VGAM716 host target protein and VGAM717 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM713, VGAM714, VGAM715, VGAM716 and VGAM717

[44874] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3231(VGR3231) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44875] VGR3231 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3231 gene was detected is described hereinabove with reference to Figs. 6-15.

[44876] VGR3231 gene encodes VGR3231 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44877] VGR3231 precursor RNA folds spatially, forming VGR3231 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3231 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3231 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[44878] VGR3231 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM718 precursor RNA and VGAM719 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44879] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM718 RNA and VGAM719 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44880] VGAM718 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM718 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM718 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM718 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44881] VGAM719 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM719 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM719 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM719 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44882] It is appreciated that a function of VGR3231 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3231 gene include diagnosis, prevention and treatment of viral infection by

Camelpox virus. Specific functions, and accordingly utilities, of VGR3231 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3231 gene: VGAM718 host target protein and VGAM719 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM718 and VGAM719

[44883] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3232(VGR3232) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44884] VGR3232 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3232 gene was detected is described hereinabove with reference to Figs.

6-15.

[44885] VGR3232 gene encodes VGR3232 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44886] VGR3232 precursor RNA folds spatially, forming VGR3232 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3232 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3232 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44887] VGR3232 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM720 precursor RNA, VGAM721 precursor RNA, VGAM722 precursor RNA and VGAM723 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM

precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44888] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM720 RNA, VGAM721 RNA, VGAM722 RNA and VGAM723 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44889] VGAM720 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM720 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM720 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM720 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44890] VGAM721 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM721 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM721 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM721 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44891] VGAM722 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM722 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM722 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM722 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44892] VGAM723 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM723 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM723 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM723 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44893] It is appreciated that a function of VGR3232 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3232 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3232 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3232 gene: VGAM720 host target protein, VGAM721 host target pro-

tein, VGAM722 host target protein and VGAM723 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM720, VGAM721, VGAM722 and VGAM723

[44894] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3233(VGR3233) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44895] VGR3233 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3233 gene was detected is described hereinabove with reference to Figs. 6-15.

[44896] VGR3233 gene encodes VGR3233 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44897] VGR3233 precursor RNA folds spatially, forming VGR3233

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3233 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3233 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44898] VGR3233 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM725 precursor RNA and VGAM726 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44899] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM725 RNA and VGAM726 RNA respectively, herein schematically

represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44900] VGAM725 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM725 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM725 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM725 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44901] VGAM726 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM726 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM726 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM726 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44902] It is appreciated that a function of VGR3233 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3233 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3233 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3233 gene: VGAM725 host target protein and VGAM726 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM725 and VGAM726

[44903] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3234(VGR3234) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44904] VGR3234 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3234 gene was detected is described hereinabove with reference to Figs. 6-15.

[44905] VGR3234 gene encodes VGR3234 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44906] VGR3234 precursor RNA folds spatially, forming VGR3234 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3234 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3234 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[44907] VGR3234 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM727 precursor RNA, VGAM728 precursor RNA and VGAM729 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44908] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM727 RNA, VGAM728 RNA and VGAM729 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44909] VGAM727 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM727 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM727 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM727 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44910] VGAM728 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM728 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM728 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM728 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44911] VGAM729 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM729 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM729 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM729 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44912] It is appreciated that a function of VGR3234 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3234 gene include diagnosis, prevention and treatment of viral infection by Rabbit fibroma virus. Specific functions, and accordingly utilities, of VGR3234 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3234 gene: VGAM727 host target protein, VGAM728 host target protein and VGAM729 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM727, VGAM728 and

VGAM729

[44913] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3235(VGR3235) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44914] VGR3235 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3235 gene was detected is described hereinabove with reference to Figs. 6-15.

[44915] VGR3235 gene encodes VGR3235 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44916] VGR3235 precursor RNA folds spatially, forming VGR3235 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3235 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3235 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44917] VGR3235 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM730 precursor RNA and VGAM731 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44918] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM730 RNA and VGAM731 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44919] VGAM730 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM730 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM730 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM730 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44920] VGAM731 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM731 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM731 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM731 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44921] It is appreciated that a function of VGR3235 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3235 gene include diagnosis, prevention and treatment of viral infection by Simian immunodeficiency virus. Specific functions, and accordingly utilities, of VGR3235 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3235 gene: VGAM730 host target protein and VGAM731 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM730 and VGAM731

[44922] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3236(VGR3236) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44923] VGR3236 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3236 gene was detected is described hereinabove with reference to Figs. 6-15.

[44924] VGR3236 gene encodes VGR3236 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44925] VGR3236 precursor RNA folds spatially, forming VGR3236 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3236 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3236 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44926] VGR3236 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM735 precursor RNA, VGAM736 precur-

sor RNA, VGAM737 precursor RNA and VGAM738 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44927] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM735 RNA, VGAM736 RNA, VGAM737 RNA and VGAM738 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44928] VGAM735 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM735 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM735 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM735 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44929] VGAM736 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM736 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM736 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM736 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44930] VGAM737 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM737 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM737 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM737 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44931] VGAM738 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM738 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM738 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM738 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[44932] It is appreciated that a function of VGR3236 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3236 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3236 gene, herein desig-

nated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3236 gene: VGAM735 host target protein, VGAM736 host target protein, VGAM737 host target protein and VGAM738 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM735, VGAM736, VGAM737 and VGAM738

[44933] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3237(VGR3237) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44934] VGR3237 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3237 gene was detected is described hereinabove with reference to Figs.

6-15.

[44935] VGR3237 gene encodes VGR3237 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44936] VGR3237 precursor RNA folds spatially, forming VGR3237 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3237 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3237 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44937] VGR3237 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM740 precursor RNA and VGAM741 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig.

8.

[44938] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM740 RNA and VGAM741 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44939] VGAM740 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM740 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM740 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM740 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44940] VGAM741 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM741 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM741 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM741 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44941] It is appreciated that a function of VGR3237 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3237 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3237 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3237 gene: VGAM740 host target protein and VGAM741 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host

target genes is elaborated hereinabove with reference to VGAM740 and VGAM741

[44942] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3238(VGR3238) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44943] VGR3238 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3238 gene was detected is described hereinabove with reference to Figs. 6-15.

[44944] VGR3238 gene encodes VGR3238 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44945] VGR3238 precursor RNA folds spatially, forming VGR3238 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3238 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3238 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44946] VGR3238 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM742 precursor RNA, VGAM743 precursor RNA and VGAM744 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44947] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM742 RNA, VGAM743 RNA and VGAM744 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44948] VGAM742 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM742 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM742 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM742 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44949] VGAM743 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM743 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM743 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM743 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44950] VGAM744 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM744 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM744 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM744 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44951] It is appreciated that a function of VGR3238 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3238 gene include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3238 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3238 gene: VGAM742 host target protein, VGAM743 host target

protein and VGAM744 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM742, VGAM743 and VGAM744

[44952] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3239(VGR3239) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44953] VGR3239 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3239 gene was detected is described hereinabove with reference to Figs. 6-15.

[44954] VGR3239 gene encodes VGR3239 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44955] VGR3239 precursor RNA folds spatially, forming VGR3239

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3239 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3239 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44956] VGR3239 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM745 precursor RNA, VGAM746 precursor RNA and VGAM747 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44957] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM745 RNA, VGAM746 RNA and VGAM747 RNA respectively,

herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44958] VGAM745 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM745 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM745 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM745 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44959] VGAM746 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM746 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM746 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM746 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44960] VGAM747 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM747 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM747 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM747 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44961] It is appreciated that a function of VGR3239 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3239 gene include diagnosis, prevention and treatment of viral infection by Murine adenovirus A. Specific functions, and accordingly utilities, of VGR3239 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3239 gene: VGAM745 host target protein, VGAM746 host target protein and VGAM747 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM745, VGAM746 and VGAM747

[44962] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3240(VGR3240) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44963] VGR3240 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3240 gene was detected is described hereinabove with reference to Figs. 6-15.

[44964] VGR3240 gene encodes VGR3240 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44965] VGR3240 precursor RNA folds spatially, forming VGR3240 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3240 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3240 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44966] VGR3240 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM748 precursor RNA and VGAM749 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44967] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM748 RNA and VGAM749 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44968] VGAM748 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM748 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM748 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM748 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44969] VGAM749 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM749 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM749 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM749 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44970] It is appreciated that a function of VGR3240 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3240 gene include diagnosis, prevention and treatment of viral infection by Odontoglossum ringspot virus. Specific functions, and accordingly utilities, of VGR3240 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3240 gene: VGAM748 host target protein and VGAM749 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM748 and VGAM749

[44971] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3241(VGR3241) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44972] VGR3241 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3241 gene was detected is described hereinabove with reference to Figs. 6-15.

[44973] VGR3241 gene encodes VGR3241 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44974] VGR3241 precursor RNA folds spatially, forming VGR3241 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3241 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3241 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44975] VGR3241 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM750 precursor RNA, VGAM751 precursor RNA and VGAM752 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44976] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM750 RNA, VGAM751 RNA and VGAM752 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44977] VGAM750 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM750 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM750 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM750 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44978] VGAM751 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM751 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM751 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM751 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44979] VGAM752 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM752 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM752 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM752 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44980] It is appreciated that a function of VGR3241 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3241 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3241 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3241 gene: VGAM750 host target protein, VGAM751 host target protein and VGAM752 host target protein,

herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM750, VGAM751 and VGAM752

[44981] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3242(VGR3242) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44982] VGR3242 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3242 gene was detected is described hereinabove with reference to Figs. 6-15.

[44983] VGR3242 gene encodes VGR3242 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44984] VGR3242 precursor RNA folds spatially, forming VGR3242 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3242 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3242 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44985] VGR3242 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM753 precursor RNA, VGAM754 precursor RNA and VGAM755 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44986] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM753 RNA, VGAM754 RNA and VGAM755 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2

RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44987] VGAM753 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM753 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM753 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM753 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44988] VGAM754 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM754 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM754 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM754 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44989] VGAM755 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM755 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM755 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM755 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[44990] It is appreciated that a function of VGR3242 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3242 gene include diagnosis, prevention and treatment of viral infection by African swine fever virus. Specific functions, and accordingly utilities, of VGR3242 gene, herein designated VGR GENE, correlate with, and may be deduced from, the iden-

tity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3242 gene: VGAM753 host target protein, VGAM754 host target protein and VGAM755 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM753, VGAM754 and VGAM755

[44991] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3243(VGR3243) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[44992] VGR3243 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3243 gene was detected is described hereinabove with reference to Figs. 6-15.

[44993] VGR3243 gene encodes VGR3243 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[44994] VGR3243 precursor RNA folds spatially, forming VGR3243 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3243 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3243 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[44995] VGR3243 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM757 precursor RNA, VGAM758 precursor RNA and VGAM759 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[44996] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM757 RNA, VGAM758 RNA and VGAM759 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[44997] VGAM757 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM757 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM757 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM757 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[44998] VGAM758 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM758 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM758 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM758 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[44999] VGAM759 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM759 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM759 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM759 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45000] It is appreciated that a function of VGR3243 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3243 gene include

diagnosis, prevention and treatment of viral infection by Human herpesvirus 8. Specific functions, and accordingly utilities, of VGR3243 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3243 gene: VGAM757 host target protein, VGAM758 host target protein and VGAM759 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM757, VGAM758 and VGAM759

[45001] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3244(VGR3244) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45002] VGR3244 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3244 gene was detected is described hereinabove with reference to Figs. 6-15.

[45003] VGR3244 gene encodes VGR3244 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45004] VGR3244 precursor RNA folds spatially, forming VGR3244 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3244 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3244 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45005] VGR3244 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM761 precursor RNA, VGAM762 precursor RNA and VGAM763 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECUR-

SOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45006] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM761 RNA, VGAM762 RNA and VGAM763 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45007] VGAM761 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM761 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM761 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM761 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45008] VGAM762 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM762 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM762 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM762 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45009] VGAM763 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM763 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM763 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM763 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45010] It is appreciated that a function of VGR3244 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3244 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3244 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3244 gene: VGAM761 host target protein, VGAM762 host target protein and VGAM763 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM761, VGAM762 and VGAM763

[45011] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3245(VGR3245) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[45012] VGR3245 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3245 gene was detected is described hereinabove with reference to Figs. 6-15.

[45013] VGR3245 gene encodes VGR3245 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45014] VGR3245 precursor RNA folds spatially, forming VGR3245 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3245 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3245 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45015] VGR3245 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM765 precursor RNA, VGAM766 precursor RNA and VGAM767 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45016] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM765 RNA, VGAM766 RNA and VGAM767 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45017] VGAM765 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM765 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM765 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM765 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45018] VGAM766 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM766 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM766 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM766 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45019] VGAM767 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM767 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM767 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM767 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45020] It is appreciated that a function of VGR3245 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3245 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3245 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3245 gene: VGAM765 host target protein, VGAM766 host target protein and VGAM767 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM765, VGAM766 and VGAM767

[45021] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3246(VGR3246) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45022] VGR3246 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3246 gene was detected is described hereinabove with reference to Figs. 6-15.

[45023] VGR3246 gene encodes VGR3246 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45024] VGR3246 precursor RNA folds spatially, forming VGR3246 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3246 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3246 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45025] VGR3246 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM768 precursor RNA and VGAM769 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45026] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM768 RNA and VGAM769 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45027] VGAM768 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM768 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM768 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM768 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45028] VGAM769 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM769 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM769 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM769 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45029] It is appreciated that a function of VGR3246 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3246 gene include

diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 2. Specific functions, and accordingly utilities, of VGR3246 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3246 gene: VGAM768 host target protein and VGAM769 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM768 and VGAM769

[45030] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3247(VGR3247) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45031] VGR3247 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3247 gene was

detected is described hereinabove with reference to Figs. 6-15.

[45032] VGR3247 gene encodes VGR3247 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45033] VGR3247 precursor RNA folds spatially, forming VGR3247 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3247 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3247 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45034] VGR3247 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM770 precursor RNA and VGAM771 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA

segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45035] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM770 RNA and VGAM771 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45036] VGAM770 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM770 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM770 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM770 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45037] VGAM771 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM771 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM771 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM771 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45038] It is appreciated that a function of VGR3247 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3247 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3247 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3247 gene: VGAM770 host target protein and VGAM771 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN re-

spectively. The function of these host target genes is elaborated hereinabove with reference to VGAM770 and VGAM771

[45039] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3248(VGR3248) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45040] VGR3248 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3248 gene was detected is described hereinabove with reference to Figs. 6-15.

[45041] VGR3248 gene encodes VGR3248 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45042] VGR3248 precursor RNA folds spatially, forming VGR3248 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3248 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3248 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45043] VGR3248 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM772 precursor RNA and VGAM773 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45044] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM772 RNA and VGAM773 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45045] VGAM772 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM772 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM772 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM772 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45046] VGAM773 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM773 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM773 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM773 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[45047] It is appreciated that a function of VGR3248 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3248 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3248 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3248 gene: VGAM772 host target protein and VGAM773 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM772 and VGAM773

[45048] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3249(VGR3249) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[45049] VGR3249 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3249 gene was detected is described hereinabove with reference to Figs. 6-15.

[45050] VGR3249 gene encodes VGR3249 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45051] VGR3249 precursor RNA folds spatially, forming VGR3249 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3249 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3249 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45052] VGR3249 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM774 precursor RNA, VGAM775 precursor RNA, VGAM776 precursor RNA, VGAM777 precursor RNA and VGAM778 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45053] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM774 RNA, VGAM775 RNA, VGAM776 RNA, VGAM777 RNA and VGAM778 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45054] VGAM774 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM774 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM774 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM774 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45055] VGAM775 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM775 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM775 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM775 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45056] VGAM776 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM776 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM776 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM776 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45057] VGAM777 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM777 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM777 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM777 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45058] VGAM778 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM778 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM778 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM778 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45059] It is appreciated that a function of VGR3249 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3249 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3249 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3249 gene: VGAM774 host target protein, VGAM775 host target protein, VGAM776 host target protein, VGAM777 host target protein and VGAM778 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively.

The function of these host target genes is elaborated hereinabove with reference to VGAM774, VGAM775, VGAM776, VGAM777 and VGAM778

[45060] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3250(VGR3250) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45061] VGR3250 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3250 gene was detected is described hereinabove with reference to Figs. 6-15.

[45062] VGR3250 gene encodes VGR3250 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45063] VGR3250 precursor RNA folds spatially, forming VGR3250 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3250 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3250 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45064] VGR3250 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM780 precursor RNA, VGAM781 precursor RNA, VGAM782 precursor RNA and VGAM783 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45065] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM780 RNA, VGAM781 RNA, VGAM782 RNA and VGAM783 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45066] VGAM780 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM780 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM780 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM780 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45067] VGAM781 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM781 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM781 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM781 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45068] VGAM782 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM782 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM782 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM782 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45069] VGAM783 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM783 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM783 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM783 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45070] It is appreciated that a function of VGR3250 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3250 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3250 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3250 gene: VGAM780 host target protein, VGAM781 host target protein, VGAM782 host target protein and VGAM783 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM780, VGAM781, VGAM782 and VGAM783

[45071] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3251(VGR3251) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45072] VGR3251 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3251 gene was detected is described hereinabove with reference to Figs. 6-15.

[45073] VGR3251 gene encodes VGR3251 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45074] VGR3251 precursor RNA folds spatially, forming VGR3251 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3251 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3251 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45075] VGR3251 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM784 precursor RNA and VGAM785 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45076] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM784 RNA and VGAM785 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45077] VGAM784 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM784 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM784 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM784 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45078] VGAM785 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM785 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM785 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM785 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45079] It is appreciated that a function of VGR3251 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3251 gene include

diagnosis, prevention and treatment of viral infection by Human papillomavirus type 83. Specific functions, and accordingly utilities, of VGR3251 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3251 gene: VGAM784 host target protein and VGAM785 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM784 and VGAM785

[45080] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3252(VGR3252) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45081] VGR3252 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3252 gene was

detected is described hereinabove with reference to Figs. 6-15.

[45082] VGR3252 gene encodes VGR3252 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45083] VGR3252 precursor RNA folds spatially, forming VGR3252 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3252 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3252 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45084] VGR3252 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM786 precursor RNA, VGAM787 precursor RNA and VGAM788 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which

VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45085] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM786 RNA, VGAM787 RNA and VGAM788 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45086] VGAM786 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM786 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM786 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM786 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45087] VGAM787 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM787 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM787 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM787 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45088] VGAM788 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM788 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM788 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM788 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45089] It is appreciated that a function of VGR3252 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3252 gene include diagnosis, prevention and treatment of viral infection by Lucerne transient streak virus. Specific functions, and accordingly utilities, of VGR3252 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3252 gene: VGAM786 host target protein, VGAM787 host target protein and VGAM788 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM786, VGAM787 and VGAM788

[45090] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3253(VGR3253) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[45091] VGR3253 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3253 gene was detected is described hereinabove with reference to Figs. 6-15.

[45092] VGR3253 gene encodes VGR3253 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45093] VGR3253 precursor RNA folds spatially, forming VGR3253 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3253 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3253 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45094] VGR3253 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM789 precursor RNA and VGAM790 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45095] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM789 RNA and VGAM790 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45096] VGAM789 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM789 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM789 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM789 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45097] VGAM790 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM790 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM790 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM790 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45098] It is appreciated that a function of VGR3253 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3253 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3253 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by

VGAM RNAs comprised in the operon-like cluster of VGR3253 gene: VGAM789 host target protein and VGAM790 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM789 and VGAM790

[45099] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3254(VGR3254) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45100] VGR3254 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3254 gene was detected is described hereinabove with reference to Figs. 6-15.

[45101] VGR3254 gene encodes VGR3254 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45102] VGR3254 precursor RNA folds spatially, forming VGR3254 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3254 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3254 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45103] VGR3254 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM791 precursor RNA, VGAM792 precursor RNA, VGAM793 precursor RNA, VGAM794 precursor RNA and VGAM795 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45104] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM791 RNA, VGAM792 RNA, VGAM793 RNA, VGAM794 RNA and VGAM795 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45105] VGAM791 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM791 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM791 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM791 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45106] VGAM792 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM792 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM792 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM792 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45107] VGAM793 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM793 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM793 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM793 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45108] VGAM794 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM794 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM794 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM794 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45109] VGAM795 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM795 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM795 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM795 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45110] It is appreciated that a function of VGR3254 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3254 gene include diagnosis, prevention and treatment of viral infection by Bovine papillomavirus. Specific functions, and accordingly utilities, of VGR3254 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3254 gene: VGAM791 host target protein, VGAM792 host target protein, VGAM793 host target protein, VGAM794 host target protein and VGAM795 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM791, VGAM792, VGAM793, VGAM794 and VGAM795

[45111] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3255(VGR3255) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[45112] VGR3255 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3255 gene was detected is described hereinabove with reference to Figs. 6-15.

[45113] VGR3255 gene encodes VGR3255 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45114] VGR3255 precursor RNA folds spatially, forming VGR3255 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3255 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3255 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45115] VGR3255 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM796 precursor RNA and VGAM797 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45116] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM796 RNA and VGAM797 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45117] VGAM796 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM796 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM796 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM796 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45118] VGAM797 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM797 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM797 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM797 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45119] It is appreciated that a function of VGR3255 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3255 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3255 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by

VGAM RNAs comprised in the operon-like cluster of VGR3255 gene: VGAM796 host target protein and VGAM797 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM796 and VGAM797

[45120] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3256(VGR3256) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45121] VGR3256 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3256 gene was detected is described hereinabove with reference to Figs. 6-15.

[45122] VGR3256 gene encodes VGR3256 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45123] VGR3256 precursor RNA folds spatially, forming VGR3256 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3256 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3256 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45124] VGR3256 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM798 precursor RNA, VGAM799 precursor RNA, VGAM800 precursor RNA, VGAM801 precursor RNA and VGAM802 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45125] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM798 RNA, VGAM799 RNA, VGAM800 RNA, VGAM801 RNA and VGAM802 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45126] VGAM798 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM798 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM798 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM798 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45127] VGAM799 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM799 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM799 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM799 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45128] VGAM800 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM800 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM800 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM800 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45129] VGAM801 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM801 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM801 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM801 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45130] VGAM802 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM802 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM802 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM802 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45131] It is appreciated that a function of VGR3256 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3256 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3256 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3256 gene: VGAM798 host target protein, VGAM799 host target protein, VGAM800 host target protein, VGAM801 host target protein and VGAM802 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM798, VGAM799, VGAM800, VGAM801 and VGAM802

[45132] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3257(VGR3257) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[45133] VGR3257 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3257 gene was detected is described hereinabove with reference to Figs. 6-15.

[45134] VGR3257 gene encodes VGR3257 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45135] VGR3257 precursor RNA folds spatially, forming VGR3257 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3257 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3257 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45136] VGR3257 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM803 precursor RNA and VGAM804 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45137] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM803 RNA and VGAM804 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45138] VGAM803 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM803 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM803 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM803 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45139] VGAM804 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM804 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM804 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM804 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45140] It is appreciated that a function of VGR3257 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3257 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3257 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are in-

hibited by VGAM RNAs comprised in the operon-like cluster of VGR3257 gene: VGAM803 host target protein and VGAM804 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM803 and VGAM804

[45141] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3258(VGR3258) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45142] VGR3258 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3258 gene was detected is described hereinabove with reference to Figs. 6-15.

[45143] VGR3258 gene encodes VGR3258 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45144] VGR3258 precursor RNA folds spatially, forming VGR3258 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3258 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3258 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45145] VGR3258 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM805 precursor RNA and VGAM806 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45146] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM805

RNA and VGAM806 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45147] VGAM805 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM805 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM805 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM805 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45148] VGAM806 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM806 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM806 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM806 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45149] It is appreciated that a function of VGR3258 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3258 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 2. Specific functions, and accordingly utilities, of VGR3258 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3258 gene: VGAM805 host target protein and VGAM806 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM805 and VGAM806

[45150] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3259(VGR3259) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45151] VGR3259 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3259 gene was detected is described hereinabove with reference to Figs. 6-15.

[45152] VGR3259 gene encodes VGR3259 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45153] VGR3259 precursor RNA folds spatially, forming VGR3259 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3259 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3259 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45154] VGR3259 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM807 precursor RNA, VGAM808 precursor RNA, VGAM809 precursor RNA and VGAM810 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45155] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM807 RNA, VGAM808 RNA, VGAM809 RNA and VGAM810 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45156] VGAM807 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM807 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM807 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM807 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45157] VGAM808 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM808 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM808 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM808 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45158] VGAM809 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM809 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM809 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM809 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45159] VGAM810 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM810 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM810 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM810 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45160] It is appreciated that a function of VGR3259 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3259 gene include diagnosis, prevention and treatment of viral infection by Fowl adenovirus D. Specific functions, and accordingly utilities, of VGR3259 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3259 gene: VGAM807 host target protein, VGAM808 host target protein, VGAM809 host target protein and VGAM810 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM807, VGAM808, VGAM809 and VGAM810

[45161] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3260(VGR3260) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[45162] VGR3260 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3260 gene was detected is described hereinabove with reference to Figs. 6-15.

[45163] VGR3260 gene encodes VGR3260 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45164] VGR3260 precursor RNA folds spatially, forming VGR3260 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3260 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3260 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45165] VGR3260 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM pre-

cursor RNAs, VGAM811 precursor RNA, VGAM812 precursor RNA and VGAM813 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45166] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM811 RNA, VGAM812 RNA and VGAM813 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45167] VGAM811 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM811 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM811 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM811 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45168] VGAM812 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM812 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM812 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM812 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45169] VGAM813 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM813 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM813 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM813 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45170] It is appreciated that a function of VGR3260 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3260 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3260 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3260 gene: VGAM811 host target protein, VGAM812 host target protein and VGAM813 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM811, VGAM812 and VGAM813

[45171] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3261(VGR3261) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45172] VGR3261 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3261 gene was detected is described hereinabove with reference to Figs. 6-15.

[45173] VGR3261 gene encodes VGR3261 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45174] VGR3261 precursor RNA folds spatially, forming VGR3261 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3261 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3261 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[45175] VGR3261 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM814 precursor RNA, VGAM815 precursor RNA, VGAM816 precursor RNA and VGAM817 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45176] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM814 RNA, VGAM815 RNA, VGAM816 RNA and VGAM817 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45177] VGAM814 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM814 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM814 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM814 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45178] VGAM815 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM815 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM815 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM815 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45179] VGAM816 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM816 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM816 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM816 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45180] VGAM817 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM817 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM817 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM817 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45181] It is appreciated that a function of VGR3261 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3261 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3261 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3261 gene: VGAM814 host target protein, VGAM815 host target protein, VGAM816 host target protein and VGAM817 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM814, VGAM815, VGAM816 and VGAM817

[45182] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3262(VGR3262) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45183] VGR3262 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3262 gene was detected is described hereinabove with reference to Figs. 6-15.

[45184] VGR3262 gene encodes VGR3262 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45185] VGR3262 precursor RNA folds spatially, forming VGR3262 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3262 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3262 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45186] VGR3262 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM818 precursor RNA, VGAM819 precur-

sor RNA and VGAM820 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45187] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM818 RNA, VGAM819 RNA and VGAM820 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45188] VGAM818 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM818 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM818 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM818 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[45189] VGAM819 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM819 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM819 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM819 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45190] VGAM820 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM820 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM820 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM820 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45191] It is appreciated that a function of VGR3262 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3262 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3262 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3262 gene: VGAM818 host target protein, VGAM819 host target protein and VGAM820 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM818, VGAM819 and VGAM820

[45192] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3263(VGR3263) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45193] VGR3263 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3263 gene was detected is described hereinabove with reference to Figs. 6-15.

[45194] VGR3263 gene encodes VGR3263 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45195] VGR3263 precursor RNA folds spatially, forming VGR3263 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3263 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3263 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45196] VGR3263 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM821 precursor RNA and VGAM822 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45197] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM821 RNA and VGAM822 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45198] VGAM821 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM821 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM821 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM821 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45199] VGAM822 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM822 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM822 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM822 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45200] It is appreciated that a function of VGR3263 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3263 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities,

of VGR3263 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3263 gene: VGAM821 host target protein and VGAM822 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM821 and VGAM822

[45201] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3264(VGR3264) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45202] VGR3264 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3264 gene was detected is described hereinabove with reference to Figs. 6-15.

[45203] VGR3264 gene encodes VGR3264 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45204] VGR3264 precursor RNA folds spatially, forming VGR3264 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3264 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3264 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45205] VGR3264 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM824 precursor RNA and VGAM825 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45206] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM824 RNA and VGAM825 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45207] VGAM824 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM824 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM824 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM824 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45208] VGAM825 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM825 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM825 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM825 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45209] It is appreciated that a function of VGR3264 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3264 gene include diagnosis, prevention and treatment of viral infection by Murid herpesvirus 4. Specific functions, and accordingly utilities, of VGR3264 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3264 gene: VGAM824 host target protein and VGAM825 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM824 and

VGAM825

[45210] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3265(VGR3265) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45211] VGR3265 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3265 gene was detected is described hereinabove with reference to Figs. 6-15.

[45212] VGR3265 gene encodes VGR3265 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45213] VGR3265 precursor RNA folds spatially, forming VGR3265 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3265 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3265 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45214] VGR3265 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM828 precursor RNA and VGAM829 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45215] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM828 RNA and VGAM829 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45216] VGAM828 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM828 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM828 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM828 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45217] VGAM829 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM829 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM829 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM829 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45218] It is appreciated that a function of VGR3265 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3265 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3265 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3265 gene: VGAM828 host target protein and VGAM829 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM828 and VGAM829

[45219] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3266(VGR3266) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45220] VGR3266 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3266 gene was detected is described hereinabove with reference to Figs. 6-15.

[45221] VGR3266 gene encodes VGR3266 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45222] VGR3266 precursor RNA folds spatially, forming VGR3266 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3266 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3266 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45223] VGR3266 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM830 precursor RNA, VGAM830 precur-

sor RNA, VGAM830 precursor RNA, VGAM830 precursor RNA, VGAM830 precursor RNA, VGAM830 precursor RNA, VGAM830 precursor RNA and VGAM830 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45224] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM830 RNA, VGAM830 RNA, VGAM830 RNA, VGAM830 RNA, VGAM830 RNA, VGAM830 RNA, VGAM830 RNA and VGAM830 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45225] VGAM830 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45226] VGAM830 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45227] VGAM830 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45228] VGAM830 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45229] VGAM830 RNA, herein schematically represented by

VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45230] VGAM830 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45231] VGAM830 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45232] VGAM830 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[45233] It is appreciated that a function of VGR3266 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3266 gene include diagnosis, prevention and treatment of viral infection by Encephalomyocarditis virus. Specific functions, and accordingly utilities, of VGR3266 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3266 gene: VGAM830 host target protein, VGAM830 host target protein, VGAM830 host target protein, VGAM830 host target protein, VGAM830 host target protein, VGAM830 host target protein, VGAM830 host target protein and VGAM830 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM830, VGAM830, VGAM830, VGAM830, VGAM830, VGAM830, VGAM830 and VGAM830

[45234] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3267(VGR3267) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45235] VGR3267 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3267 gene was detected is described hereinabove with reference to Figs. 6-15.

[45236] VGR3267 gene encodes VGR3267 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45237] VGR3267 precursor RNA folds spatially, forming VGR3267 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3267 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3267 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45238] VGR3267 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM830 precursor RNA, VGAM830 precursor RNA, VGAM831 precursor RNA, VGAM831 precursor RNA, VGAM831 precursor RNA, VGAM831 precursor RNA, VGAM832 precursor RNA and VGAM832 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45239] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM830 RNA, VGAM830 RNA, VGAM831 RNA, VGAM831 RNA, VGAM831 RNA, VGAM831 RNA, VGAM832 RNA and VGAM832 RNA respectively, herein schematically repre-

sented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45240] VGAM830 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45241] VGAM830 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM830 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM830 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM830 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45242] VGAM831 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM831 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM831 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM831 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45243] VGAM831 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM831 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM831 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM831 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45244] VGAM831 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM831 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM831 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM831 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45245] VGAM831 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM831 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM831 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM831 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45246] VGAM832 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM832 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM832 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM832 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45247] VGAM832 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM832 host target RNA, herein schematically represented by VGAM8

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM832 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM832 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45248] It is appreciated that a function of VGR3267 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3267 gene include diagnosis, prevention and treatment of viral infection by Encephalomyocarditis virus. Specific functions, and accordingly utilities, of VGR3267 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3267 gene: VGAM830 host target protein, VGAM830 host target protein, VGAM831 host target protein, VGAM831 host target protein, VGAM831 host target protein, VGAM831 host target protein, VGAM832 host target protein and VGAM832 host target protein, herein

schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM830, VGAM830, VGAM831, VGAM831, VGAM831, VGAM831, VGAM832 and VGAM832

[45249] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3268(VGR3268) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45250] VGR3268 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3268 gene was detected is described hereinabove with reference to Figs. 6-15.

[45251] VGR3268 gene encodes VGR3268 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45252] VGR3268 precursor RNA folds spatially, forming VGR3268

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3268 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3268 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45253] VGR3268 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM832 precursor RNA and VGAM832 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45254] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM832 RNA and VGAM832 RNA respectively, herein schematically

represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45255] VGAM832 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM832 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM832 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM832 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45256] VGAM832 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM832 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM832 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM832 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45257] It is appreciated that a function of VGR3268 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3268 gene include diagnosis, prevention and treatment of viral infection by Encephalomyocarditis virus. Specific functions, and accordingly utilities, of VGR3268 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3268 gene: VGAM832 host target protein and VGAM832 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM832 and VGAM832

[45258] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3269(VGR3269) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45259] VGR3269 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3269 gene was detected is described hereinabove with reference to Figs. 6-15.

[45260] VGR3269 gene encodes VGR3269 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45261] VGR3269 precursor RNA folds spatially, forming VGR3269 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3269 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3269 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[45262] VGR3269 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM833 precursor RNA, VGAM834 precursor RNA and VGAM835 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45263] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM833 RNA, VGAM834 RNA and VGAM835 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45264] VGAM833 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM833 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM833 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM833 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45265] VGAM834 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM834 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM834 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM834 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45266] VGAM835 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM835 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM835 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM835 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45267] It is appreciated that a function of VGR3269 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3269 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3269 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3269 gene: VGAM833 host target protein, VGAM834 host target protein and VGAM835 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM833, VGAM834 and

VGAM835

[45268] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3270(VGR3270) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45269] VGR3270 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3270 gene was detected is described hereinabove with reference to Figs. 6-15.

[45270] VGR3270 gene encodes VGR3270 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45271] VGR3270 precursor RNA folds spatially, forming VGR3270 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3270 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3270 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45272] VGR3270 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM836 precursor RNA, VGAM837 precursor RNA, VGAM838 precursor RNA, VGAM839 precursor RNA, VGAM840 precursor RNA, VGAM841 precursor RNA, VGAM842 precursor RNA and VGAM843 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45273] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM836 RNA, VGAM837 RNA, VGAM838 RNA, VGAM839 RNA,

VGAM840 RNA, VGAM841 RNA, VGAM842 RNA and VGAM843 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45274] VGAM836 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM836 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM836 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM836 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45275] VGAM837 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM837 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM837 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM837 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45276] VGAM838 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM838 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM838 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM838 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45277] VGAM839 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM839 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM839 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM839 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45278] VGAM840 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM840 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM840 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM840 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45279] VGAM841 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM841 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM841 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM841 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45280] VGAM842 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM842 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM842 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM842 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45281] VGAM843 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding

site located in an untranslated region of VGAM843 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM843 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM843 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45282] It is appreciated that a function of VGR3270 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3270 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3270 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3270 gene: VGAM836 host target protein, VGAM837 host target protein, VGAM838 host target protein, VGAM839 host target protein, VGAM840 host target protein, VGAM841 host tar-

get protein, VGAM842 host target protein and VGAM843 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM836, VGAM837, VGAM838, VGAM839, VGAM840, VGAM841, VGAM842 and VGAM843

[45283] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3271(VGR3271) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45284] VGR3271 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3271 gene was detected is described hereinabove with reference to Figs. 6-15.

[45285] VGR3271 gene encodes VGR3271 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45286] VGR3271 precursor RNA folds spatially, forming VGR3271 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3271 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3271 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45287] VGR3271 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM845 precursor RNA, VGAM846 precursor RNA, VGAM847 precursor RNA and VGAM848 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45288] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM845 RNA, VGAM846 RNA, VGAM847 RNA and VGAM848 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45289] VGAM845 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM845 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM845 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM845 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45290] VGAM846 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM846 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM846 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM846 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45291] VGAM847 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM847 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM847 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM847 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45292] VGAM848 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM848 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM848 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM848 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45293] It is appreciated that a function of VGR3271 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3271 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 89. Specific functions, and accordingly utilities, of VGR3271 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3271 gene: VGAM845 host target protein, VGAM846 host target protein, VGAM847 host target protein and VGAM848 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these

host target genes is elaborated hereinabove with reference to VGAM845, VGAM846, VGAM847 and VGAM848

[45294] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3272(VGR3272) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45295] VGR3272 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3272 gene was detected is described hereinabove with reference to Figs. 6-15.

[45296] VGR3272 gene encodes VGR3272 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45297] VGR3272 precursor RNA folds spatially, forming VGR3272 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3272 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3272 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45298] VGR3272 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM849 precursor RNA, VGAM850 precursor RNA, VGAM851 precursor RNA, VGAM852 precursor RNA, VGAM853 precursor RNA and VGAM854 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45299] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM849 RNA, VGAM850 RNA, VGAM851 RNA, VGAM852 RNA, VGAM853 RNA and VGAM854 RNA respectively, herein

schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45300] VGAM849 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM849 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM849 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM849 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45301] VGAM850 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM850 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM850 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM850 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45302] VGAM851 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM851 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM851 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM851 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45303] VGAM852 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM852 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM852 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM852 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45304] VGAM853 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM853 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM853 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM853 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45305] VGAM854 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM854 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM854 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM854 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45306] It is appreciated that a function of VGR3272 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3272 gene include diagnosis, prevention and treatment of viral infection by Southern cowpea mosaic virus. Specific functions, and accordingly utilities, of VGR3272 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3272 gene: VGAM849 host target protein, VGAM850 host target protein, VGAM851 host target protein, VGAM852 host target protein, VGAM853 host target protein and VGAM854 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The

function of these host target genes is elaborated herein-above with reference to VGAM849, VGAM850, VGAM851, VGAM852, VGAM853 and VGAM854

[45307] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3273(VGR3273) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45308] VGR3273 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3273 gene was detected is described hereinabove with reference to Figs. 6-15.

[45309] VGR3273 gene encodes VGR3273 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45310] VGR3273 precursor RNA folds spatially, forming VGR3273 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3273 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3273 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45311] VGR3273 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM855 precursor RNA, VGAM856 precursor RNA, VGAM857 precursor RNA, VGAM858 precursor RNA, VGAM859 precursor RNA, VGAM860 precursor RNA, VGAM861 precursor RNA and VGAM862 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45312] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM855 RNA, VGAM856 RNA, VGAM857 RNA, VGAM858 RNA, VGAM859 RNA, VGAM860 RNA, VGAM861 RNA and VGAM862 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45313] VGAM855 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM855 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM855 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM855 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45314] VGAM856 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM856 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM856 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM856 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45315] VGAM857 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM857 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM857 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM857 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45316] VGAM858 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM858 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM858 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM858 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45317] VGAM859 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM859 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM859 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM859 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45318] VGAM860 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM860 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM860 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM860 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45319] VGAM861 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM861 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM861 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM861 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45320] VGAM862 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM862 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM862 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM862 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45321] It is appreciated that a function of VGR3273 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3273 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3273 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3273 gene: VGAM855 host target protein, VGAM856 host target pro-

tein, VGAM857 host target protein, VGAM858 host target protein, VGAM859 host target protein, VGAM860 host target protein, VGAM861 host target protein and VGAM862 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM855, VGAM856, VGAM857, VGAM858, VGAM859, VGAM860, VGAM861 and VGAM862

[45322] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3274(VGR3274) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45323] VGR3274 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3274 gene was detected is described hereinabove with reference to Figs. 6-15.

[45324] VGR3274 gene encodes VGR3274 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45325] VGR3274 precursor RNA folds spatially, forming VGR3274 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3274 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3274 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45326] VGR3274 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM863 precursor RNA, VGAM864 precursor RNA and VGAM865 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45327] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM863 RNA, VGAM864 RNA and VGAM865 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45328] VGAM863 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM863 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM863 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM863 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45329] VGAM864 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM864 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM864 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM864 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45330] VGAM865 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM865 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM865 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM865 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45331] It is appreciated that a function of VGR3274 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3274 gene include

diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3274 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3274 gene: VGAM863 host target protein, VGAM864 host target protein and VGAM865 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM863, VGAM864 and VGAM865

[45332] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3275(VGR3275) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45333] VGR3275 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3275 gene was detected is described hereinabove with reference to Figs. 6-15.

[45334] VGR3275 gene encodes VGR3275 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45335] VGR3275 precursor RNA folds spatially, forming VGR3275 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3275 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3275 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45336] VGR3275 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM866 precursor RNA, VGAM867 precursor RNA, VGAM868 precursor RNA, VGAM869 precursor RNA, VGAM870 precursor RNA and VGAM871 precursor

RNA, herein schematically represented by VGAM1 PRE-CURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRE-CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45337] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM866 RNA, VGAM867 RNA, VGAM868 RNA, VGAM869 RNA, VGAM870 RNA and VGAM871 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45338] VGAM866 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM866 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM866 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM866 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45339] VGAM867 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM867 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM867 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM867 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45340] VGAM868 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM868 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM868 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM868 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45341] VGAM869 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM869 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM869 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM869 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45342] VGAM870 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM870 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM870 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM870 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45343] VGAM871 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM871 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM871 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM871 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45344] It is appreciated that a function of VGR3275 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3275 gene include diagnosis, prevention and treatment of viral infection by

Cowpox virus. Specific functions, and accordingly utilities, of VGR3275 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3275 gene: VGAM866 host target protein, VGAM867 host target protein, VGAM868 host target protein, VGAM869 host target protein, VGAM870 host target protein and VGAM871 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM866, VGAM867, VGAM868, VGAM869, VGAM870 and VGAM871

[45345] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3276(VGR3276) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45346] VGR3276 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3276 gene was detected is described hereinabove with reference to Figs. 6-15.

[45347] VGR3276 gene encodes VGR3276 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45348] VGR3276 precursor RNA folds spatially, forming VGR3276 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3276 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3276 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45349] VGR3276 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM872 precursor RNA, VGAM873 precursor RNA, VGAM874 precursor RNA, VGAM875 precursor

RNA, VGAM876 precursor RNA, VGAM877 precursor RNA and VGAM878 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45350] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM872 RNA, VGAM873 RNA, VGAM874 RNA, VGAM875 RNA, VGAM876 RNA, VGAM877 RNA and VGAM878 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45351] VGAM872 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM872 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM872 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM872 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45352] VGAM873 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM873 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM873 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM873 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45353] VGAM874 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM874 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM874 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM874 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45354] VGAM875 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM875 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM875 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM875 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45355] VGAM876 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM876 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM876 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM876 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45356] VGAM877 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM877 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM877 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM877 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45357] VGAM878 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM878 host

target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM878 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM878 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45358] It is appreciated that a function of VGR3276 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3276 gene include diagnosis, prevention and treatment of viral infection by Satellite tobacco mosaic virus. Specific functions, and accordingly utilities, of VGR3276 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3276 gene: VGAM872 host target protein, VGAM873 host target protein, VGAM874 host target protein, VGAM875 host target protein, VGAM876 host target protein, VGAM877 host target protein and VGAM878 host

target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM872, VGAM873, VGAM874, VGAM875, VGAM876, VGAM877 and VGAM878

[45359] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3277(VGR3277) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45360] VGR3277 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3277 gene was detected is described hereinabove with reference to Figs. 6-15.

[45361] VGR3277 gene encodes VGR3277 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45362] VGR3277 precursor RNA folds spatially, forming VGR3277

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3277 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3277 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45363] VGR3277 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM879 precursor RNA, VGAM879 precursor RNA, VGAM879 precursor RNA, VGAM879 precursor RNA and VGAM880 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45364] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM879 RNA, VGAM879 RNA, VGAM879 RNA, VGAM879 RNA and VGAM880 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45365] VGAM879 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM879 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM879 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM879 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45366] VGAM879 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM879 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM879 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM879 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45367] VGAM879 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM879 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM879 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM879 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45368] VGAM879 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM879 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM879 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM879 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45369] VGAM880 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM880 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM880 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM880 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45370] It is appreciated that a function of VGR3277 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3277 gene include diagnosis, prevention and treatment of viral infection by Rabbit fibroma virus. Specific functions, and accordingly utilities, of VGR3277 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3277 gene: VGAM879 host target protein, VGAM879 host target protein, VGAM879 host target protein, VGAM879 host target protein and VGAM880 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM879, VGAM879, VGAM879, VGAM879 and VGAM880

[45371] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3278(VGR3278) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45372] VGR3278 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3278 gene was detected is described hereinabove with reference to Figs. 6-15.

[45373] VGR3278 gene encodes VGR3278 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45374] VGR3278 precursor RNA folds spatially, forming VGR3278 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3278 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3278 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45375] VGR3278 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM881 precursor RNA, VGAM882 precur-

sor RNA, VGAM883 precursor RNA, VGAM884 precursor RNA and VGAM885 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45376] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM881 RNA, VGAM882 RNA, VGAM883 RNA, VGAM884 RNA and VGAM885 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45377] VGAM881 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM881 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM881 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM881 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45378] VGAM882 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM882 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM882 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM882 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45379] VGAM883 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM883 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM883 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM883 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45380] VGAM884 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM884 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM884 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM884 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45381] VGAM885 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM885 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM885 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM885 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45382] It is appreciated that a function of VGR3278 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3278 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus F. Specific functions, and accordingly utilities, of VGR3278 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3278 gene: VGAM881 host target protein, VGAM882 host target protein, VGAM883 host target protein, VGAM884 host target protein and VGAM885 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM881, VGAM882,

VGAM883, VGAM884 and VGAM885

[45383] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3279(VGR3279) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45384] VGR3279 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3279 gene was detected is described hereinabove with reference to Figs. 6-15.

[45385] VGR3279 gene encodes VGR3279 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45386] VGR3279 precursor RNA folds spatially, forming VGR3279 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3279 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3279 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45387] VGR3279 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM887 precursor RNA and VGAM888 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45388] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM887 RNA and VGAM888 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45389] VGAM887 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM887 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM887 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM887 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45390] VGAM888 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM888 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM888 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM888 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45391] It is appreciated that a function of VGR3279 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3279 gene include diagnosis, prevention and treatment of viral infection by Bovine enterovirus. Specific functions, and accordingly utilities, of VGR3279 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3279 gene: VGAM887 host target protein and VGAM888 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM887 and VGAM888

[45392] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3280(VGR3280) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45393] VGR3280 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3280 gene was detected is described hereinabove with reference to Figs. 6-15.

[45394] VGR3280 gene encodes VGR3280 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45395] VGR3280 precursor RNA folds spatially, forming VGR3280 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3280 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3280 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45396] VGR3280 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM889 precursor RNA, VGAM890 precur-

sor RNA and VGAM891 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45397] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM889 RNA, VGAM890 RNA and VGAM891 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45398] VGAM889 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM889 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM889 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM889 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[45399] VGAM890 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM890 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM890 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM890 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45400] VGAM891 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM891 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM891 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM891 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45401] It is appreciated that a function of VGR3280 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3280 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 2. Specific functions, and accordingly utilities, of VGR3280 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3280 gene: VGAM889 host target protein, VGAM890 host target protein and VGAM891 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM889, VGAM890 and VGAM891

[45402] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3281(VGR3281) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45403] VGR3281 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3281 gene was detected is described hereinabove with reference to Figs. 6-15.

[45404] VGR3281 gene encodes VGR3281 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45405] VGR3281 precursor RNA folds spatially, forming VGR3281 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3281 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3281 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45406] VGR3281 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM892 precursor RNA, VGAM893 precursor RNA, VGAM894 precursor RNA, VGAM895 precursor RNA and VGAM896 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45407] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM892 RNA, VGAM893 RNA, VGAM894 RNA, VGAM895 RNA and VGAM896 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45408] VGAM892 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM892 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM892 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM892 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45409] VGAM893 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM893 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM893 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM893 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45410] VGAM894 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM894 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM894 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM894 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45411] VGAM895 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM895 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM895 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM895 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45412] VGAM896 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM896 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM896 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM896 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45413] It is appreciated that a function of VGR3281 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3281 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3281 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3281 gene: VGAM892 host target protein, VGAM893 host target protein, VGAM894 host target protein, VGAM895 host target protein and VGAM896 host target protein, herein

schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM892, VGAM893, VGAM894, VGAM895 and VGAM896

[45414] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3282(VGR3282) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45415] VGR3282 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3282 gene was detected is described hereinabove with reference to Figs. 6-15.

[45416] VGR3282 gene encodes VGR3282 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45417] VGR3282 precursor RNA folds spatially, forming VGR3282 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3282 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3282 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45418] VGR3282 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM898 precursor RNA, VGAM899 precursor RNA, VGAM900 precursor RNA, VGAM901 precursor RNA and VGAM902 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45419] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM898

RNA, VGAM899 RNA, VGAM900 RNA, VGAM901 RNA and VGAM902 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45420] VGAM898 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM898 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM898 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM898 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45421] VGAM899 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM899 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM899 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM899 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45422] VGAM900 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM900 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM900 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM900 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45423] VGAM901 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM901 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM901 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM901 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45424] VGAM902 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM902 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM902 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM902 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45425] It is appreciated that a function of VGR3282 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3282 gene include

diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3282 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3282 gene: VGAM898 host target protein, VGAM899 host target protein, VGAM900 host target protein, VGAM901 host target protein and VGAM902 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM898, VGAM899, VGAM900, VGAM901 and VGAM902

[45426] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3283(VGR3283) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45427] VGR3283 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3283 gene was detected is described hereinabove with reference to Figs. 6-15.

[45428] VGR3283 gene encodes VGR3283 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45429] VGR3283 precursor RNA folds spatially, forming VGR3283 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3283 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3283 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45430] VGR3283 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM905 precursor RNA, VGAM906 precursor RNA and VGAM907 precursor RNA, herein schemati-

cally represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45431] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM905 RNA, VGAM906 RNA and VGAM907 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45432] VGAM905 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM905 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM905 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM905 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45433] VGAM906 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM906 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM906 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM906 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45434] VGAM907 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM907 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM907 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM907 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[45435] It is appreciated that a function of VGR3283 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3283 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3283 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3283 gene: VGAM905 host target protein, VGAM906 host target protein and VGAM907 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM905, VGAM906 and VGAM907

[45436] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3284(VGR3284) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45437] VGR3284 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3284 gene was detected is described hereinabove with reference to Figs. 6-15.

[45438] VGR3284 gene encodes VGR3284 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45439] VGR3284 precursor RNA folds spatially, forming VGR3284 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3284 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3284 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45440] VGR3284 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM908 precursor RNA and VGAM909 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45441] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM908 RNA and VGAM909 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45442] VGAM908 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM908 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM908 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM908 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45443] VGAM909 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM909 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM909 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM909 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45444] It is appreciated that a function of VGR3284 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3284 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3284 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3284 gene: VGAM908 host target protein and VGAM909 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM908 and VGAM909

[45445] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3285(VGR3285) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45446] VGR3285 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3285 gene was detected is described hereinabove with reference to Figs. 6-15.

[45447] VGR3285 gene encodes VGR3285 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45448] VGR3285 precursor RNA folds spatially, forming VGR3285 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3285 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3285 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45449] VGR3285 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM910 precursor RNA, VGAM911 precursor RNA, VGAM912 precursor RNA, VGAM913 precursor RNA and VGAM914 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to

VGAM PRECURSOR RNA of Fig. 8.

[45450] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM910 RNA, VGAM911 RNA, VGAM912 RNA, VGAM913 RNA and VGAM914 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45451] VGAM910 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM910 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM910 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM910 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45452] VGAM911 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM911 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM911 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM911 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45453] VGAM912 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM912 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM912 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM912 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45454] VGAM913 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM913 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM913 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM913 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45455] VGAM914 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM914 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM914 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM914 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45456] It is appreciated that a function of VGR3285 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3285 gene include diagnosis, prevention and treatment of viral infection by Saimiriine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3285 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3285 gene: VGAM910 host target protein, VGAM911 host target protein, VGAM912 host target protein, VGAM913 host target protein and VGAM914 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM910, VGAM911, VGAM912, VGAM913 and VGAM914

[45457] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3286(VGR3286) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45458] VGR3286 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3286 gene was detected is described hereinabove with reference to Figs. 6-15.

[45459] VGR3286 gene encodes VGR3286 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45460] VGR3286 precursor RNA folds spatially, forming VGR3286 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3286 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3286 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45461] VGR3286 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM915 precursor RNA, VGAM916 precursor RNA and VGAM917 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45462] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM915 RNA, VGAM916 RNA and VGAM917 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45463] VGAM915 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM915 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM915 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM915 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45464] VGAM916 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM916 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM916 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM916 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45465] VGAM917 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM917 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM917 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM917 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45466] It is appreciated that a function of VGR3286 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3286 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus E. Specific functions, and accordingly utilities, of VGR3286 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3286 gene: VGAM915 host target protein, VGAM916 host target protein and VGAM917 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM915, VGAM916 and VGAM917

[45467] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3287(VGR3287) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45468] VGR3287 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3287 gene was detected is described hereinabove with reference to Figs. 6-15.

[45469] VGR3287 gene encodes VGR3287 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45470] VGR3287 precursor RNA folds spatially, forming VGR3287 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3287 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3287 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45471] VGR3287 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM918 precursor RNA, VGAM919 precursor RNA, VGAM920 precursor RNA, VGAM921 precursor RNA and VGAM922 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45472] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM918 RNA, VGAM919 RNA, VGAM920 RNA, VGAM921 RNA and VGAM922 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45473] VGAM918 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM918 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM918 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM918 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45474] VGAM919 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM919 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM919 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM919 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45475] VGAM920 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM920 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM920 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM920 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45476] VGAM921 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM921 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM921 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM921 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[45477] VGAM922 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM922 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM922 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM922 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45478] It is appreciated that a function of VGR3287 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3287 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3287 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3287 gene:

VGAM918 host target protein, VGAM919 host target protein, VGAM920 host target protein, VGAM921 host target protein and VGAM922 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM918, VGAM919, VGAM920, VGAM921 and VGAM922

[45479] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3288(VGR3288) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45480] VGR3288 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3288 gene was detected is described hereinabove with reference to Figs. 6-15.

[45481] VGR3288 gene encodes VGR3288 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[45482] VGR3288 precursor RNA folds spatially, forming VGR3288 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3288 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3288 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45483] VGR3288 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM923 precursor RNA, VGAM924 precursor RNA and VGAM925 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45484] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM923 RNA, VGAM924 RNA and VGAM925 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45485] VGAM923 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM923 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM923 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM923 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45486] VGAM924 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM924 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM924 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM924 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45487] VGAM925 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM925 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM925 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM925 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45488] It is appreciated that a function of VGR3288 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3288 gene include diagnosis, prevention and treatment of viral infection by

Cryphonectria hypovirus 3. Specific functions, and accordingly utilities, of VGR3288 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3288 gene: VGAM923 host target protein, VGAM924 host target protein and VGAM925 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM923, VGAM924 and VGAM925

[45489] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3289(VGR3289) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45490] VGR3289 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3289 gene was

detected is described hereinabove with reference to Figs. 6-15.

[45491] VGR3289 gene encodes VGR3289 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45492] VGR3289 precursor RNA folds spatially, forming VGR3289 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3289 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3289 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45493] VGR3289 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM926 precursor RNA, VGAM927 precursor RNA, VGAM928 precursor RNA, VGAM929 precursor RNA, VGAM930 precursor RNA, VGAM931 precursor RNA, VGAM932 precursor RNA and VGAM933 precursor RNA,

herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45494] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM926 RNA, VGAM927 RNA, VGAM928 RNA, VGAM929 RNA, VGAM930 RNA, VGAM931 RNA, VGAM932 RNA and VGAM933 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45495] VGAM926 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM926 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM926 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM926 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45496] VGAM927 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM927 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM927 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM927 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45497] VGAM928 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM928 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM928 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM928 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45498] VGAM929 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM929 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM929 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM929 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45499] VGAM930 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM930 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM930 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM930 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45500] VGAM931 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM931 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM931 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM931 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45501] VGAM932 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM932 host

target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM932 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM932 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45502] VGAM933 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM933 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM933 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM933 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45503] It is appreciated that a function of VGR3289 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3289 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3289 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3289 gene: VGAM926 host target protein, VGAM927 host target protein, VGAM928 host target protein, VGAM929 host target protein, VGAM930 host target protein, VGAM931 host target protein, VGAM932 host target protein and VGAM933 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM926, VGAM927, VGAM928, VGAM929, VGAM930, VGAM931, VGAM932 and VGAM933

[45504] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3290(VGR3290) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45505] VGR3290 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3290 gene was detected is described hereinabove with reference to Figs. 6-15.

[45506] VGR3290 gene encodes VGR3290 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45507] VGR3290 precursor RNA folds spatially, forming VGR3290 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3290 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3290 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45508] VGR3290 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM934 precursor RNA, VGAM934 precursor RNA, VGAM934 precursor RNA, VGAM934 precursor RNA, VGAM934 precursor RNA, VGAM934 precursor RNA, VGAM934 precursor RNA and VGAM934 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45509] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM934 RNA, VGAM934 RNA, VGAM934 RNA, VGAM934 RNA, VGAM934 RNA, VGAM934 RNA, VGAM934 RNA and VGAM934 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45510] VGAM934 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM934 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45511] VGAM934 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM934 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[45512] VGAM934 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM934 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45513] VGAM934 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM934 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45514] VGAM934 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM934 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45515] VGAM934 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM934 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45516] VGAM934 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM934 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45517] VGAM934 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM934 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45518] It is appreciated that a function of VGR3290 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3290 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3290 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3290 gene: VGAM934 host target protein, VGAM934 host target protein, VGAM934 host target protein, VGAM934 host target protein, VGAM934 host target protein, VGAM934 host target protein, VGAM934 host target protein and VGAM934 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM934, VGAM934, VGAM934, VGAM934, VGAM934,

VGAM934, VGAM934 and VGAM934

[45519] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3291(VGR3291) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45520] VGR3291 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3291 gene was detected is described hereinabove with reference to Figs. 6-15.

[45521] VGR3291 gene encodes VGR3291 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45522] VGR3291 precursor RNA folds spatially, forming VGR3291 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3291 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3291 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45523] VGR3291 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM934 precursor RNA, VGAM934 precursor RNA, VGAM935 precursor RNA and VGAM936 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45524] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM934 RNA, VGAM934 RNA, VGAM935 RNA and VGAM936 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45525] VGAM934 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM934 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45526] VGAM934 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM934 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM934 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM934 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[45527] VGAM935 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM935 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM935 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM935 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45528] VGAM936 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM936 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM936 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM936 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45529] It is appreciated that a function of VGR3291 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3291 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3291 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3291 gene: VGAM934 host target protein, VGAM934 host target protein, VGAM935 host target protein and VGAM936 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM934, VGAM934, VGAM935 and VGAM936

[45530] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3292(VGR3292) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45531] VGR3292 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3292 gene was detected is described hereinabove with reference to Figs. 6-15.

[45532] VGR3292 gene encodes VGR3292 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45533] VGR3292 precursor RNA folds spatially, forming VGR3292 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3292 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3292 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45534] VGR3292 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM937 precursor RNA, VGAM938 precursor RNA and VGAM939 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45535] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM937 RNA, VGAM938 RNA and VGAM939 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45536] VGAM937 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM937 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM937 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM937 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45537] VGAM938 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM938 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM938 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM938 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45538] VGAM939 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM939 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM939 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM939 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45539] It is appreciated that a function of VGR3292 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3292 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3292 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3292 gene: VGAM937 host target protein, VGAM938 host target protein and VGAM939 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM937, VGAM938 and VGAM939

[45540] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3293(VGR3293) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45541] VGR3293 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3293 gene was detected is described hereinabove with reference to Figs. 6-15.

[45542] VGR3293 gene encodes VGR3293 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45543] VGR3293 precursor RNA folds spatially, forming VGR3293 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3293 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3293 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45544] VGR3293 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM940 precursor RNA, VGAM941 precursor RNA and VGAM942 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45545] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM940 RNA, VGAM941 RNA and VGAM942 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45546] VGAM940 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM940 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM940 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM940 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45547] VGAM941 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM941 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM941 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM941 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45548] VGAM942 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM942 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM942 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM942 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45549] It is appreciated that a function of VGR3293 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3293 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3293 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3293 gene: VGAM940 host target protein, VGAM941 host target protein and VGAM942 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN

through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM940, VGAM941 and VGAM942

[45550] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3294(VGR3294) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45551] VGR3294 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3294 gene was detected is described hereinabove with reference to Figs. 6-15.

[45552] VGR3294 gene encodes VGR3294 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45553] VGR3294 precursor RNA folds spatially, forming VGR3294 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3294 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3294 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45554] VGR3294 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM943 precursor RNA, VGAM944 precursor RNA, VGAM945 precursor RNA, VGAM946 precursor RNA, VGAM947 precursor RNA, VGAM948 precursor RNA, VGAM949 precursor RNA and VGAM950 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45555] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM943 RNA, VGAM944 RNA, VGAM945 RNA, VGAM946 RNA, VGAM947 RNA, VGAM948 RNA, VGAM949 RNA and VGAM950 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45556] VGAM943 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM943 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM943 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM943 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45557] VGAM944 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM944 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM944 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM944 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45558] VGAM945 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM945 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM945 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM945 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45559] VGAM946 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM946 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM946 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM946 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45560] VGAM947 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM947 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM947 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM947 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45561] VGAM948 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM948 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM948 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM948 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45562] VGAM949 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM949 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM949 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM949 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[45563] VGAM950 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM950 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM950 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM950 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45564] It is appreciated that a function of VGR3294 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3294 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3294 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3294 gene:

VGAM943 host target protein, VGAM944 host target protein, VGAM945 host target protein, VGAM946 host target protein, VGAM947 host target protein, VGAM948 host target protein, VGAM949 host target protein and VGAM950 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM943, VGAM944, VGAM945, VGAM946, VGAM947, VGAM948, VGAM949 and VGAM950

[45565] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3295(VGR3295) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45566] VGR3295 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3295 gene was detected is described hereinabove with reference to Figs. 6-15.

[45567] VGR3295 gene encodes VGR3295 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45568] VGR3295 precursor RNA folds spatially, forming VGR3295 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3295 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3295 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45569] VGR3295 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM951 precursor RNA, VGAM952 precursor RNA and VGAM953 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45570] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM951 RNA, VGAM952 RNA and VGAM953 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45571] VGAM951 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM951 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM951 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM951 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45572] VGAM952 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM952 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM952 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM952 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45573] VGAM953 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM953 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM953 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM953 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45574] It is appreciated that a function of VGR3295 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3295 gene include diagnosis, prevention and treatment of viral infection by Simian T-lymphotropic virus 1. Specific functions, and accordingly utilities, of VGR3295 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3295 gene: VGAM951 host target protein, VGAM952 host target protein and VGAM953 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM951, VGAM952 and VGAM953

[45575] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3296(VGR3296) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45576] VGR3296 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3296 gene was detected is described hereinabove with reference to Figs. 6-15.

[45577] VGR3296 gene encodes VGR3296 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45578] VGR3296 precursor RNA folds spatially, forming VGR3296 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3296 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3296 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45579] VGR3296 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM954 precursor RNA, VGAM955 precursor RNA, VGAM956 precursor RNA, VGAM957 precursor

RNA, VGAM958 precursor RNA, VGAM959 precursor RNA and VGAM960 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45580] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM954 RNA, VGAM955 RNA, VGAM956 RNA, VGAM957 RNA, VGAM958 RNA, VGAM959 RNA and VGAM960 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45581] VGAM954 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM954 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM954 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM954 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45582] VGAM955 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM955 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM955 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM955 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45583] VGAM956 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM956 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM956 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM956 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45584] VGAM957 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM957 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM957 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM957 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45585] VGAM958 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM958 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM958 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM958 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45586] VGAM959 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM959 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM959 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM959 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45587] VGAM960 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM960 host

target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM960 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM960 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45588] It is appreciated that a function of VGR3296 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3296 gene include diagnosis, prevention and treatment of viral infection by Periplaneta fuliginosa densovirus. Specific functions, and accordingly utilities, of VGR3296 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3296 gene: VGAM954 host target protein, VGAM955 host target protein, VGAM956 host target protein, VGAM957 host target protein, VGAM958 host target protein, VGAM959 host target protein and VGAM960 host

target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM954, VGAM955, VGAM956, VGAM957, VGAM958, VGAM959 and VGAM960

[45589] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3297(VGR3297) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45590] VGR3297 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3297 gene was detected is described hereinabove with reference to Figs. 6-15.

[45591] VGR3297 gene encodes VGR3297 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45592] VGR3297 precursor RNA folds spatially, forming VGR3297

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3297 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3297 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45593] VGR3297 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM961 precursor RNA, VGAM962 precursor RNA and VGAM963 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45594] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM961 RNA, VGAM962 RNA and VGAM963 RNA respectively,

herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45595] VGAM961 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM961 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM961 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM961 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45596] VGAM962 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM962 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM962 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM962 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45597] VGAM963 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM963 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM963 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM963 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45598] It is appreciated that a function of VGR3297 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3297 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3297 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3297 gene: VGAM961 host target protein, VGAM962 host target protein and VGAM963 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM961, VGAM962 and VGAM963

[45599] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3298(VGR3298) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45600] VGR3298 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3298 gene was detected is described hereinabove with reference to Figs. 6-15.

[45601] VGR3298 gene encodes VGR3298 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45602] VGR3298 precursor RNA folds spatially, forming VGR3298 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3298 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3298 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45603] VGR3298 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM964 precursor RNA, VGAM965 precursor RNA and VGAM966 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45604] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM964 RNA, VGAM965 RNA and VGAM966 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45605] VGAM964 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM964 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM964 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM964 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45606] VGAM965 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM965 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM965 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM965 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45607] VGAM966 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM966 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM966 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM966 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45608] It is appreciated that a function of VGR3298 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3298 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3298 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3298 gene: VGAM964 host target protein, VGAM965 host target protein and VGAM966 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM964, VGAM965 and VGAM966

[45609] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3299(VGR3299) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45610] VGR3299 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3299 gene was detected is described hereinabove with reference to Figs. 6-15.

[45611] VGR3299 gene encodes VGR3299 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45612] VGR3299 precursor RNA folds spatially, forming VGR3299 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3299 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3299 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45613] VGR3299 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM967 precursor RNA, VGAM968 precursor RNA, VGAM969 precursor RNA and VGAM970 precur-

sor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45614] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM967 RNA, VGAM968 RNA, VGAM969 RNA and VGAM970 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45615] VGAM967 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM967 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM967 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM967 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45616] VGAM968 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM968 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM968 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM968 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45617] VGAM969 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM969 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM969 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM969 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45618] VGAM970 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM970 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM970 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM970 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45619] It is appreciated that a function of VGR3299 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3299 gene include diagnosis, prevention and treatment of viral infection by Drosophila C virus. Specific functions, and accordingly utilities, of VGR3299 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of

the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3299 gene: VGAM967 host target protein, VGAM968 host target protein, VGAM969 host target protein and VGAM970 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM967, VGAM968, VGAM969 and VGAM970

[45620] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3300(VGR3300) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45621] VGR3300 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3300 gene was detected is described hereinabove with reference to Figs. 6-15.

[45622] VGR3300 gene encodes VGR3300 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45623] VGR3300 precursor RNA folds spatially, forming VGR3300 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3300 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3300 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45624] VGR3300 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM971 precursor RNA, VGAM972 precursor RNA and VGAM973 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45625] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM971 RNA, VGAM972 RNA and VGAM973 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45626] VGAM971 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM971 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM971 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM971 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45627] VGAM972 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM972 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM972 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM972 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45628] VGAM973 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM973 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM973 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM973 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45629] It is appreciated that a function of VGR3300 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3300 gene include

diagnosis, prevention and treatment of viral infection by Fowl adenovirus A. Specific functions, and accordingly utilities, of VGR3300 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3300 gene: VGAM971 host target protein, VGAM972 host target protein and VGAM973 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM971, VGAM972 and VGAM973

[45630] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3301(VGR3301) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45631] VGR3301 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3301 gene was detected is described hereinabove with reference to Figs. 6-15.

[45632] VGR3301 gene encodes VGR3301 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45633] VGR3301 precursor RNA folds spatially, forming VGR3301 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3301 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3301 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45634] VGR3301 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM975 precursor RNA, VGAM976 precursor RNA, VGAM977 precursor RNA and VGAM978 precursor RNA, herein schematically represented by VGAM1 PRE-

CURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45635] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM975 RNA, VGAM976 RNA, VGAM977 RNA and VGAM978 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45636] VGAM975 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM975 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM975 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM975 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[45637] VGAM976 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM976 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM976 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM976 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45638] VGAM977 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM977 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM977 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM977 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45639] VGAM978 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM978 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM978 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM978 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45640] It is appreciated that a function of VGR3301 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3301 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 6. Specific functions, and accordingly utilities, of VGR3301 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3301 gene: VGAM975 host target protein, VGAM976 host target protein, VGAM977 host target protein and VGAM978 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM975, VGAM976, VGAM977 and VGAM978

[45641] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3302(VGR3302) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45642] VGR3302 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3302 gene was detected is described hereinabove with reference to Figs. 6-15.

[45643] VGR3302 gene encodes VGR3302 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[45644] VGR3302 precursor RNA folds spatially, forming VGR3302 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3302 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3302 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45645] VGR3302 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM979 precursor RNA, VGAM980 precursor RNA and VGAM981 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45646] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM979 RNA, VGAM980 RNA and VGAM981 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45647] VGAM979 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM979 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM979 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM979 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45648] VGAM980 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM980 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM980 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM980 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45649] VGAM981 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM981 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM981 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM981 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45650] It is appreciated that a function of VGR3302 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3302 gene include diagnosis, prevention and treatment of viral infection by

Gallid herpesvirus 2. Specific functions, and accordingly utilities, of VGR3302 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3302 gene: VGAM979 host target protein, VGAM980 host target protein and VGAM981 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM979, VGAM980 and VGAM981

[45651] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3303(VGR3303) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45652] VGR3303 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3303 gene was

detected is described hereinabove with reference to Figs. 6-15.

[45653] VGR3303 gene encodes VGR3303 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45654] VGR3303 precursor RNA folds spatially, forming VGR3303 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3303 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3303 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45655] VGR3303 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM982 precursor RNA, VGAM983 precursor RNA and VGAM984 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which

VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45656] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM982 RNA, VGAM983 RNA and VGAM984 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45657] VGAM982 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM982 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM982 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM982 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45658] VGAM983 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM983 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM983 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM983 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45659] VGAM984 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM984 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM984 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM984 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45660] It is appreciated that a function of VGR3303 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3303 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3303 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3303 gene: VGAM982 host target protein, VGAM983 host target protein and VGAM984 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM982, VGAM983 and VGAM984

[45661] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3304(VGR3304) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[45662] VGR3304 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3304 gene was detected is described hereinabove with reference to Figs. 6-15.

[45663] VGR3304 gene encodes VGR3304 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45664] VGR3304 precursor RNA folds spatially, forming VGR3304 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3304 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3304 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45665] VGR3304 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM pre-

cursor RNAs, VGAM985 precursor RNA, VGAM986 precursor RNA and VGAM987 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45666] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM985 RNA, VGAM986 RNA and VGAM987 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45667] VGAM985 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM985 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM985 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM985 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45668] VGAM986 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM986 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM986 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM986 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45669] VGAM987 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM987 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM987 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM987 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45670] It is appreciated that a function of VGR3304 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3304 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3304 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3304 gene: VGAM985 host target protein, VGAM986 host target protein and VGAM987 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM985, VGAM986 and VGAM987

[45671] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3305(VGR3305) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45672] VGR3305 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3305 gene was detected is described hereinabove with reference to Figs. 6-15.

[45673] VGR3305 gene encodes VGR3305 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45674] VGR3305 precursor RNA folds spatially, forming VGR3305 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3305 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3305 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[45675] VGR3305 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM988 precursor RNA and VGAM989 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45676] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM988 RNA and VGAM989 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45677] VGAM988 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM988 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM988 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM988 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45678] VGAM989 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM989 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM989 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM989 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45679] It is appreciated that a function of VGR3305 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3305 gene include diagnosis, prevention and treatment of viral infection by

Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3305 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3305 gene: VGAM988 host target protein and VGAM989 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM988 and VGAM989

[45680] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3306(VGR3306) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45681] VGR3306 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3306 gene was detected is described hereinabove with reference to Figs.

6-15.

[45682] VGR3306 gene encodes VGR3306 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45683] VGR3306 precursor RNA folds spatially, forming VGR3306 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3306 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3306 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45684] VGR3306 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM990 precursor RNA, VGAM991 precursor RNA, VGAM992 precursor RNA and VGAM993 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM

precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45685] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM990 RNA, VGAM991 RNA, VGAM992 RNA and VGAM993 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45686] VGAM990 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM990 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM990 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM990 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45687] VGAM991 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM991 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM991 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM991 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45688] VGAM992 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM992 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM992 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM992 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45689] VGAM993 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM993 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM993 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM993 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45690] It is appreciated that a function of VGR3306 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3306 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3306 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3306 gene: VGAM990 host target protein,

VGAM991 host target protein, VGAM992 host target protein and VGAM993 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM990, VGAM991, VGAM992 and VGAM993

[45691] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3307(VGR3307) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45692] VGR3307 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3307 gene was detected is described hereinabove with reference to Figs. 6-15.

[45693] VGR3307 gene encodes VGR3307 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45694] VGR3307 precursor RNA folds spatially, forming VGR3307 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3307 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3307 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45695] VGR3307 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM996 precursor RNA, VGAM997 precursor RNA and VGAM998 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45696] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM996

RNA, VGAM997 RNA and VGAM998 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45697] VGAM996 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM996 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM996 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM996 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45698] VGAM997 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM997 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM997 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM997 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45699] VGAM998 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM998 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM998 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM998 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45700] It is appreciated that a function of VGR3307 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3307 gene include diagnosis, prevention and treatment of viral infection by Fowl adenovirus A. Specific functions, and accordingly

utilities, of VGR3307 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3307 gene: VGAM996 host target protein, VGAM997 host target protein and VGAM998 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM996, VGAM997 and VGAM998

[45701] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3308(VGR3308) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45702] VGR3308 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3308 gene was detected is described hereinabove with reference to Figs.

6-15.

[45703] VGR3308 gene encodes VGR3308 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45704] VGR3308 precursor RNA folds spatially, forming VGR3308 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3308 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3308 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45705] VGR3308 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM999 precursor RNA and VGAM1000 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[45706] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM999 RNA and VGAM1000 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45707] VGAM999 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM999 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM999 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM999 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45708] VGAM1000 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1000 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1000 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1000 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45709] It is appreciated that a function of VGR3308 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3308 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3308 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3308 gene: VGAM999 host target protein and VGAM1000 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM999 and VGAM1000

[45710] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3309(VGR3309) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45711] VGR3309 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3309 gene was detected is described hereinabove with reference to Figs. 6-15.

[45712] VGR3309 gene encodes VGR3309 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45713] VGR3309 precursor RNA folds spatially, forming VGR3309 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3309 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3309 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45714] VGR3309 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1001 precursor RNA and VGAM1002 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45715] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1001 RNA and VGAM1002 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45716] VGAM1001 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1001 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1001 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1001 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45717] VGAM1002 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1002 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1002 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1002 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45718] It is appreciated that a function of VGR3309 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3309 gene include diagnosis, prevention and treatment of viral infection by Rice tungro bacilliform virus. Specific functions, and accordingly utilities, of VGR3309 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3309 gene: VGAM1001 host target protein and VGAM1002 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1001 and VGAM1002

[45719] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3310(VGR3310) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[45720] VGR3310 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3310 gene was detected is described hereinabove with reference to Figs. 6-15.

[45721] VGR3310 gene encodes VGR3310 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45722] VGR3310 precursor RNA folds spatially, forming VGR3310 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3310 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3310 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45723] VGR3310 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM1004 precursor RNA and VGAM1005 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45724] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1004 RNA and VGAM1005 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45725] VGAM1004 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1004 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1004 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1004 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45726] VGAM1005 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1005 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1005 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1005 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45727] It is appreciated that a function of VGR3310 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3310 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3310 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3310 gene: VGAM1004 host target protein and VGAM1005 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1004 and VGAM1005

[45728] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3311(VGR3311) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45729] VGR3311 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3311 gene was detected is described hereinabove with reference to Figs. 6-15.

[45730] VGR3311 gene encodes VGR3311 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45731] VGR3311 precursor RNA folds spatially, forming VGR3311 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3311 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3311 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45732] VGR3311 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1007 precursor RNA and VGAM1008 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45733] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1007

RNA and VGAM1008 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45734] VGAM1007 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1007 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1007 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1007 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45735] VGAM1008 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1008 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1008 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1008 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45736] It is appreciated that a function of VGR3311 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3311 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 2. Specific functions, and accordingly utilities, of VGR3311 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3311 gene: VGAM1007 host target protein and VGAM1008 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1007 and VGAM1008

[45737] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3312(VGR3312) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45738] VGR3312 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3312 gene was detected is described hereinabove with reference to Figs. 6-15.

[45739] VGR3312 gene encodes VGR3312 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45740] VGR3312 precursor RNA folds spatially, forming VGR3312 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3312 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3312 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45741] VGR3312 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1009 precursor RNA and VGAM1010 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45742] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1009 RNA and VGAM1010 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45743] VGAM1009 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1009 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1009 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1009 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45744] VGAM1010 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1010 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1010 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1010 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45745] It is appreciated that a function of VGR3312 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3312 gene include

diagnosis, prevention and treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGR3312 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3312 gene: VGAM1009 host target protein and VGAM1010 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1009 and VGAM1010

[45746] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3313(VGR3313) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45747] VGR3313 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3313 gene was

detected is described hereinabove with reference to Figs. 6-15.

[45748] VGR3313 gene encodes VGR3313 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45749] VGR3313 precursor RNA folds spatially, forming VGR3313 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3313 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3313 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45750] VGR3313 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1011 precursor RNA, VGAM1012 precursor RNA, VGAM1013 precursor RNA and VGAM1014 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-

CURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45751] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1011 RNA, VGAM1012 RNA, VGAM1013 RNA and VGAM1014 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45752] VGAM1011 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1011 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1011 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1011 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[45753] VGAM1012 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1012 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1012 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1012 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45754] VGAM1013 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1013 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1013 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1013 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45755] VGAM1014 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1014 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1014 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1014 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45756] It is appreciated that a function of VGR3313 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3313 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3313 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3313 gene: VGAM1011 host target protein, VGAM1012 host target protein, VGAM1013 host target protein and VGAM1014 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1011, VGAM1012, VGAM1013 and VGAM1014

[45757] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3314(VGR3314) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45758] VGR3314 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3314 gene was detected is described hereinabove with reference to Figs. 6-15.

[45759] VGR3314 gene encodes VGR3314 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[45760] VGR3314 precursor RNA folds spatially, forming VGR3314 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3314 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3314 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45761] VGR3314 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1016 precursor RNA, VGAM1017 precursor RNA, VGAM1018 precursor RNA, VGAM1019 precursor RNA, VGAM1019 precursor RNA, VGAM1019 precursor RNA, VGAM1019 precursor RNA and VGAM1019 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRE-

CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45762] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1016 RNA, VGAM1017 RNA, VGAM1018 RNA, VGAM1019 RNA, VGAM1019 RNA, VGAM1019 RNA, VGAM1019 RNA and VGAM1019 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45763] VGAM1016 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1016 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1016 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1016 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45764] VGAM1017 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1017 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1017 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1017 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45765] VGAM1018 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1018 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1018 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1018 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45766] VGAM1019 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1019 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1019 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1019 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45767] VGAM1019 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1019 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1019 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1019 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45768] VGAM1019 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1019 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1019 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1019 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45769] VGAM1019 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1019 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1019 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1019 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45770] VGAM1019 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1019 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1019 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1019 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45771] It is appreciated that a function of VGR3314 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3314 gene include diagnosis, prevention and treatment of viral infection by Tomato mosaic virus. Specific functions, and accordingly

utilities, of VGR3314 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3314 gene: VGAM1016 host target protein, VGAM1017 host target protein, VGAM1018 host target protein, VGAM1019 host target protein, VGAM1019 host target protein, VGAM1019 host target protein, VGAM1019 host target protein and VGAM1019 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1016, VGAM1017, VGAM1018, VGAM1019, VGAM1019, VGAM1019, VGAM1019 and VGAM1019

[45772] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3315(VGR3315) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45773] VGR3315 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3315 gene was detected is described hereinabove with reference to Figs. 6-15.

[45774] VGR3315 gene encodes VGR3315 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45775] VGR3315 precursor RNA folds spatially, forming VGR3315 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3315 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3315 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45776] VGR3315 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1023 precursor RNA, VGAM1024 pre-

cursor RNA, VGAM1025 precursor RNA, VGAM1026 precursor RNA, VGAM1027 precursor RNA and VGAM1028 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45777] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1023 RNA, VGAM1024 RNA, VGAM1025 RNA, VGAM1026 RNA, VGAM1027 RNA and VGAM1028 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45778] VGAM1023 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1023 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1023 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1023 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45779] VGAM1024 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1024 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1024 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1024 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45780] VGAM1025 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1025 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1025 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1025 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45781] VGAM1026 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1026 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1026 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1026 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45782] VGAM1027 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1027 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1027 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1027 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45783] VGAM1028 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1028 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1028 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1028 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45784] It is appreciated that a function of VGR3315 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3315 gene include diagnosis, prevention and treatment of viral infection by Rabbit fibroma virus. Specific functions, and accordingly utilities, of VGR3315 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3315 gene: VGAM1023 host target protein, VGAM1024 host target protein, VGAM1025 host target protein, VGAM1026 host target protein, VGAM1027 host target protein and VGAM1028 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1023, VGAM1024, VGAM1025, VGAM1026, VGAM1027 and VGAM1028

[45785] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3316(VGR3316) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[45786] VGR3316 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3316 gene was detected is described hereinabove with reference to Figs. 6-15.

[45787] VGR3316 gene encodes VGR3316 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45788] VGR3316 precursor RNA folds spatially, forming VGR3316 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3316 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3316 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45789] VGR3316 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM1029 precursor RNA and VGAM1030 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45790] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1029 RNA and VGAM1030 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45791] VGAM1029 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1029 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1029 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1029 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45792] VGAM1030 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1030 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1030 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1030 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45793] It is appreciated that a function of VGR3316 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3316 gene include diagnosis, prevention and treatment of viral infection by African swine fever virus. Specific functions, and accordingly utilities, of VGR3316 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM

RNAs comprised in the operon-like cluster of VGR3316 gene: VGAM1029 host target protein and VGAM1030 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1029 and VGAM1030

[45794] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3317(VGR3317) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45795] VGR3317 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3317 gene was detected is described hereinabove with reference to Figs. 6-15.

[45796] VGR3317 gene encodes VGR3317 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45797] VGR3317 precursor RNA folds spatially, forming VGR3317 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3317 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3317 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45798] VGR3317 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1032 precursor RNA, VGAM1033 precursor RNA and VGAM1034 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45799] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1032 RNA, VGAM1033 RNA and VGAM1034 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45800] VGAM1032 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1032 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1032 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1032 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45801] VGAM1033 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1033 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1033 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1033 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45802] VGAM1034 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1034 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1034 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1034 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45803] It is appreciated that a function of VGR3317 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3317 gene include diagnosis, prevention and treatment of viral infection by

Vaccinia virus. Specific functions, and accordingly utilities, of VGR3317 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3317 gene: VGAM1032 host target protein, VGAM1033 host target protein and VGAM1034 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1032, VGAM1033 and VGAM1034

[45804] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3318(VGR3318) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45805] VGR3318 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3318 gene was

detected is described hereinabove with reference to Figs. 6-15.

[45806] VGR3318 gene encodes VGR3318 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45807] VGR3318 precursor RNA folds spatially, forming VGR3318 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3318 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3318 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45808] VGR3318 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1035 precursor RNA, VGAM1036 precursor RNA and VGAM1037 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45809] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1035 RNA, VGAM1036 RNA and VGAM1037 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45810] VGAM1035 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1035 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1035 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1035 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45811] VGAM1036 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1036 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1036 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1036 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45812] VGAM1037 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1037 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1037 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1037 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45813] It is appreciated that a function of VGR3318 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3318 gene include diagnosis, prevention and treatment of viral infection by Porcine enterovirus B. Specific functions, and accordingly utilities, of VGR3318 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3318 gene: VGAM1035 host target protein, VGAM1036 host target protein and VGAM1037 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1035, VGAM1036 and VGAM1037

[45814] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3319(VGR3319) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[45815] VGR3319 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3319 gene was detected is described hereinabove with reference to Figs. 6-15.

[45816] VGR3319 gene encodes VGR3319 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45817] VGR3319 precursor RNA folds spatially, forming VGR3319 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3319 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3319 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45818] VGR3319 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1038 precursor RNA, VGAM1039 precursor RNA, VGAM1040 precursor RNA and VGAM1041 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45819] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1038 RNA, VGAM1039 RNA, VGAM1040 RNA and VGAM1041 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45820] VGAM1038 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1038 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1038 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1038 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45821] VGAM1039 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1039 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1039 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1039 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45822] VGAM1040 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1040 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1040 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1040 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45823] VGAM1041 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1041 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1041 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1041 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45824] It is appreciated that a function of VGR3319 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3319 gene include

diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3319 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3319 gene: VGAM1038 host target protein, VGAM1039 host target protein, VGAM1040 host target protein and VGAM1041 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1038, VGAM1039, VGAM1040 and VGAM1041

[45825] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3320(VGR3320) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45826] VGR3320 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3320 gene was detected is described hereinabove with reference to Figs. 6-15.

[45827] VGR3320 gene encodes VGR3320 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45828] VGR3320 precursor RNA folds spatially, forming VGR3320 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3320 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3320 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45829] VGR3320 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 pre-

cursor RNA, VGAM1043 precursor RNA and VGAM1043 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45830] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA and VGAM1043 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45831] VGAM1043 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45832] VGAM1043 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45833] VGAM1043 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45834] VGAM1043 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45835] VGAM1043 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45836] VGAM1043 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45837] VGAM1043 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45838] VGAM1043 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45839] It is appreciated that a function of VGR3320 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3320 gene include diagnosis, prevention and treatment of viral infection by Human spumaretrovirus. Specific functions, and accordingly utilities, of VGR3320 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3320 gene: VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein and VGAM1043 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1043, VGAM1043, VGAM1043, VGAM1043, VGAM1043, VGAM1043, VGAM1043 and VGAM1043

[45840] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3321(VGR3321) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45841] VGR3321 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3321 gene was detected is described hereinabove with reference to Figs. 6-15.

[45842] VGR3321 gene encodes VGR3321 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45843] VGR3321 precursor RNA folds spatially, forming VGR3321 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3321 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3321 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[45844] VGR3321 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA and VGAM1043 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45845] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA and VGAM1043 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45846] VGAM1043 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45847] VGAM1043 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1043 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45848] VGAM1043 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45849] VGAM1043 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45850] VGAM1043 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45851] VGAM1043 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45852] VGAM1043 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45853] VGAM1043 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45854] It is appreciated that a function of VGR3321 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3321 gene include diagnosis, prevention and treatment of viral infection by Human spumaretrovirus. Specific functions, and accordingly utilities, of VGR3321 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3321 gene: VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein and VGAM1043 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively.

The function of these host target genes is elaborated hereinabove with reference to VGAM1043, VGAM1043, VGAM1043, VGAM1043, VGAM1043, VGAM1043, VGAM1043 and VGAM1043

[45855] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3322(VGR3322) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45856] VGR3322 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3322 gene was detected is described hereinabove with reference to Figs. 6-15.

[45857] VGR3322 gene encodes VGR3322 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45858] VGR3322 precursor RNA folds spatially, forming VGR3322 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3322 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3322 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45859] VGR3322 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1043 precursor RNA, VGAM1044 precursor RNA, VGAM1045 precursor RNA and VGAM1046 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45860] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1043 RNA, VGAM1044 RNA, VGAM1045 RNA and VGAM1046 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45861] VGAM1043 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45862] VGAM1043 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45863] VGAM1043 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45864] VGAM1043 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45865] VGAM1043 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1043 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1043 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1043 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45866] VGAM1044 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1044 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1044 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1044 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45867] VGAM1045 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1045 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1045 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1045 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[45868] VGAM1046 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1046 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1046 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1046 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45869] It is appreciated that a function of VGR3322 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3322 gene include diagnosis, prevention and treatment of viral infection by Human spumaretrovirus. Specific functions, and accordingly utilities, of VGR3322 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3322

gene: VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1043 host target protein, VGAM1044 host target protein, VGAM1045 host target protein and VGAM1046 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1043, VGAM1043, VGAM1043, VGAM1043, VGAM1043, VGAM1044, VGAM1045 and VGAM1046

[45870] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3323(VGR3323) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45871] VGR3323 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3323 gene was detected is described hereinabove with reference to Figs.

6-15.

[45872] VGR3323 gene encodes VGR3323 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45873] VGR3323 precursor RNA folds spatially, forming VGR3323 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3323 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3323 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45874] VGR3323 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1048 precursor RNA, VGAM1049 precursor RNA, VGAM1050 precursor RNA, VGAM1051 precursor RNA, VGAM1052 precursor RNA, VGAM1053 precursor RNA and VGAM1054 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45875] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1048 RNA, VGAM1049 RNA, VGAM1050 RNA, VGAM1051 RNA, VGAM1052 RNA, VGAM1053 RNA and VGAM1054 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45876] VGAM1048 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1048 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1048 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1048 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45877] VGAM1049 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1049 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1049 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1049 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45878] VGAM1050 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1050 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1050 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1050 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45879] VGAM1051 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1051 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1051 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1051 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[45880] VGAM1052 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1052 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1052 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1052 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45881] VGAM1053 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1053 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1053 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1053 host target protein, herein schematically

represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45882] VGAM1054 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1054 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1054 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1054 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45883] It is appreciated that a function of VGR3323 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3323 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3323 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3323 gene: VGAM1048 host target protein, VGAM1049 host target protein, VGAM1050 host target protein, VGAM1051 host target protein, VGAM1052 host target protein, VGAM1053 host target protein and VGAM1054 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1048, VGAM1049, VGAM1050, VGAM1051, VGAM1052, VGAM1053 and VGAM1054

[45884] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3324(VGR3324) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45885] VGR3324 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3324 gene was detected is described hereinabove with reference to Figs.

6-15.

[45886] VGR3324 gene encodes VGR3324 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45887] VGR3324 precursor RNA folds spatially, forming VGR3324 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3324 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3324 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45888] VGR3324 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1055 precursor RNA, VGAM1056 precursor RNA and VGAM1057 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA

segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45889] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1055 RNA, VGAM1056 RNA and VGAM1057 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45890] VGAM1055 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1055 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1055 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1055 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45891] VGAM1056 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1056 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1056 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1056 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45892] VGAM1057 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1057 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1057 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1057 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45893] It is appreciated that a function of VGR3324 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3324 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 3. Specific functions, and accordingly utilities, of VGR3324 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3324 gene: VGAM1055 host target protein, VGAM1056 host target protein and VGAM1057 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1055, VGAM1056 and VGAM1057

[45894] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3325(VGR3325) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[45895] VGR3325 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3325 gene was detected is described hereinabove with reference to Figs. 6-15.

[45896] VGR3325 gene encodes VGR3325 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45897] VGR3325 precursor RNA folds spatially, forming VGR3325 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3325 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3325 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45898] VGR3325 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM1058 precursor RNA, VGAM1059 precursor RNA, VGAM1060 precursor RNA, VGAM1061 precursor RNA, VGAM1062 precursor RNA, VGAM1063 precursor RNA, VGAM1064 precursor RNA and VGAM1065 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45899] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1058 RNA, VGAM1059 RNA, VGAM1060 RNA, VGAM1061 RNA, VGAM1062 RNA, VGAM1063 RNA, VGAM1064 RNA and VGAM1065 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45900] VGAM1058 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1058 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1058 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1058 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45901] VGAM1059 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1059 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1059 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1059 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45902] VGAM1060 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1060 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1060 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1060 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45903] VGAM1061 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1061 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1061 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1061 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45904] VGAM1062 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1062 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1062 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1062 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45905] VGAM1063 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1063 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1063 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1063 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[45906] VGAM1064 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1064 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1064 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1064 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45907] VGAM1065 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1065 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1065 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1065 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45908] It is appreciated that a function of VGR3325 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3325 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3325 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3325 gene: VGAM1058 host target protein, VGAM1059 host target protein, VGAM1060 host target protein, VGAM1061 host target protein, VGAM1062 host target protein, VGAM1063 host target protein, VGAM1064 host target protein and VGAM1065 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1058, VGAM1059, VGAM1060, VGAM1061, VGAM1062, VGAM1063, VGAM1064 and VGAM1065

[45909] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3326(VGR3326) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45910] VGR3326 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3326 gene was detected is described hereinabove with reference to Figs. 6-15.

[45911] VGR3326 gene encodes VGR3326 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45912] VGR3326 precursor RNA folds spatially, forming VGR3326 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3326 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3326 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45913] VGR3326 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1067 precursor RNA, VGAM1068 precursor RNA, VGAM1069 precursor RNA, VGAM1070 precursor RNA, VGAM1071 precursor RNA and VGAM1072 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45914] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1067 RNA, VGAM1068 RNA, VGAM1069 RNA, VGAM1070 RNA, VGAM1071 RNA and VGAM1072 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA

respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45915] VGAM1067 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1067 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1067 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1067 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45916] VGAM1068 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1068 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1068 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1068 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45917] VGAM1069 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1069 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1069 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1069 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45918] VGAM1070 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1070 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1070 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM1070 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45919] VGAM1071 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1071 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1071 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1071 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45920] VGAM1072 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1072 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1072 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1072 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45921] It is appreciated that a function of VGR3326 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3326 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3326 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3326 gene: VGAM1067 host target protein, VGAM1068 host target protein, VGAM1069 host target protein, VGAM1070 host target protein, VGAM1071 host target protein and VGAM1072 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1067, VGAM1068, VGAM1069,

VGAM1070, VGAM1071 and VGAM1072

[45922] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3327(VGR3327) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45923] VGR3327 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3327 gene was detected is described hereinabove with reference to Figs. 6-15.

[45924] VGR3327 gene encodes VGR3327 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45925] VGR3327 precursor RNA folds spatially, forming VGR3327 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3327 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3327 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45926] VGR3327 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1073 precursor RNA, VGAM1074 precursor RNA, VGAM1075 precursor RNA and VGAM1076 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45927] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1073 RNA, VGAM1074 RNA, VGAM1075 RNA and VGAM1076 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to

VGAM RNA of Fig. 8.

[45928] VGAM1073 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1073 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1073 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1073 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45929] VGAM1074 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1074 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1074 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1074 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45930] VGAM1075 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1075 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1075 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1075 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45931] VGAM1076 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1076 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1076 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM1076 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45932] It is appreciated that a function of VGR3327 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3327 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3327 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3327 gene: VGAM1073 host target protein, VGAM1074 host target protein, VGAM1075 host target protein and VGAM1076 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1073, VGAM1074, VGAM1075 and VGAM1076

[45933] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3328(VGR3328) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45934] VGR3328 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3328 gene was detected is described hereinabove with reference to Figs. 6-15.

[45935] VGR3328 gene encodes VGR3328 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45936] VGR3328 precursor RNA folds spatially, forming VGR3328 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3328 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3328 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[45937] VGR3328 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1077 precursor RNA, VGAM1078 precursor RNA, VGAM1079 precursor RNA, VGAM1080 precursor RNA, VGAM1081 precursor RNA, VGAM1082 precursor RNA, VGAM1083 precursor RNA and VGAM1084 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45938] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1077 RNA, VGAM1078 RNA, VGAM1079 RNA, VGAM1080 RNA, VGAM1081 RNA, VGAM1082 RNA, VGAM1083 RNA and VGAM1084 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45939] VGAM1077 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1077 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1077 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1077 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45940] VGAM1078 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1078 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1078 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1078 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45941] VGAM1079 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1079 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1079 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1079 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45942] VGAM1080 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1080 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1080 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM1080 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45943] VGAM1081 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1081 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1081 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1081 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45944] VGAM1082 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1082 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1082 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1082 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45945] VGAM1083 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1083 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1083 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1083 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45946] VGAM1084 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45947] It is appreciated that a function of VGR3328 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3328 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3328 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3328 gene: VGAM1077 host target protein, VGAM1078 host target protein, VGAM1079 host target protein, VGAM1080 host target protein, VGAM1081 host target protein, VGAM1082 host target protein, VGAM1083 host target protein and VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function

of these host target genes is elaborated hereinabove with reference to VGAM1077, VGAM1078, VGAM1079, VGAM1080, VGAM1081, VGAM1082, VGAM1083 and VGAM1084

[45948] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3329(VGR3329) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45949] VGR3329 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3329 gene was detected is described hereinabove with reference to Figs. 6-15.

[45950] VGR3329 gene encodes VGR3329 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45951] VGR3329 precursor RNA folds spatially, forming VGR3329 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3329 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3329 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45952] VGR3329 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA and VGAM1084 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45953] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA and VGAM1084 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45954] VGAM1084 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45955] VGAM1084 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45956] VGAM1084 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45957] VGAM1084 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45958] VGAM1084 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45959] VGAM1084 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45960] VGAM1084 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[45961] VGAM1084 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45962] It is appreciated that a function of VGR3329 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3329 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3329 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3329 gene:

VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein and VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084 and VGAM1084

[45963] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3330(VGR3330) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45964] VGR3330 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3330 gene was detected is described hereinabove with reference to Figs.

6-15.

[45965] VGR3330 gene encodes VGR3330 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45966] VGR3330 precursor RNA folds spatially, forming VGR3330 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3330 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3330 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45967] VGR3330 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA and VGAM1084 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45968] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA and VGAM1084 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45969] VGAM1084 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45970] VGAM1084 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[45971] VGAM1084 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45972] VGAM1084 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45973] VGAM1084 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45974] VGAM1084 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45975] VGAM1084 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM7

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45976] VGAM1084 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45977] It is appreciated that a function of VGR3330 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3330 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3330 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3330 gene: VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein and VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084 and VGAM1084

[45978] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3331(VGR3331) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45979] VGR3331 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3331 gene was detected is described hereinabove with reference to Figs. 6-15.

[45980] VGR3331 gene encodes VGR3331 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45981] VGR3331 precursor RNA folds spatially, forming VGR3331 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3331 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3331 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45982] VGR3331 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA and VGAM1084 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45983] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA and VGAM1084 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45984] VGAM1084 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[45985] VGAM1084 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[45986] VGAM1084 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[45987] VGAM1084 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1084 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[45988] VGAM1084 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[45989] VGAM1084 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM1084 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[45990] VGAM1084 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[45991] VGAM1084 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[45992] It is appreciated that a function of VGR3331 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3331 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3331 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3331 gene: VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein and VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1084, VGAM1084, VGAM1084,

VGAM1084, VGAM1084, VGAM1084, VGAM1084 and VGAM1084

[45993] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3332(VGR3332) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[45994] VGR3332 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3332 gene was detected is described hereinabove with reference to Figs. 6-15.

[45995] VGR3332 gene encodes VGR3332 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[45996] VGR3332 precursor RNA folds spatially, forming VGR3332 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3332 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3332 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[45997] VGR3332 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA and VGAM1084 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[45998] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1084

RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA and VGAM1084 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[45999] VGAM1084 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46000] VGAM1084 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46001] VGAM1084 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46002] VGAM1084 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46003] VGAM1084 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46004] VGAM1084 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46005] VGAM1084 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46006] VGAM1084 RNA, herein schematically represented by

VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46007] It is appreciated that a function of VGR3332 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3332 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3332 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3332 gene: VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host

target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein and VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084 and VGAM1084

[46008] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3333(VGR3333) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46009] VGR3333 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3333 gene was detected is described hereinabove with reference to Figs. 6-15.

[46010] VGR3333 gene encodes VGR3333 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46011] VGR3333 precursor RNA folds spatially, forming VGR3333 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3333 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3333 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46012] VGR3333 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA and VGAM1084 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR,

VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46013] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA and VGAM1084 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46014] VGAM1084 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46015] VGAM1084 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46016] VGAM1084 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46017] VGAM1084 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46018] VGAM1084 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46019] VGAM1084 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46020] VGAM1084 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46021] VGAM1084 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46022] It is appreciated that a function of VGR3333 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3333 gene include diagnosis, prevention and treatment of viral infection by

Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3333 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3333 gene: VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein and VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084 and VGAM1084

[46023] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3334(VGR3334) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[46024] VGR3334 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3334 gene was detected is described hereinabove with reference to Figs. 6-15.

[46025] VGR3334 gene encodes VGR3334 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46026] VGR3334 precursor RNA folds spatially, forming VGR3334 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3334 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3334 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46027] VGR3334 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA, VGAM1084 precursor RNA and VGAM1085 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46028] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA, VGAM1084 RNA and VGAM1085 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46029] VGAM1084 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46030] VGAM1084 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46031] VGAM1084 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46032] VGAM1084 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46033] VGAM1084 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46034] VGAM1084 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[46035] VGAM1084 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1084 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1084 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46036] VGAM1085 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1085 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46037] It is appreciated that a function of VGR3334 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3334 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3334 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3334 gene: VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein, VGAM1084 host target protein and VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084, VGAM1084 and VGAM1085

[46038] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3335(VGR3335) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46039] VGR3335 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3335 gene was detected is described hereinabove with reference to Figs. 6-15.

[46040] VGR3335 gene encodes VGR3335 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46041] VGR3335 precursor RNA folds spatially, forming VGR3335 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3335 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3335 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46042] VGR3335 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA and VGAM1085 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46043] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA and

VGAM1085 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46044] VGAM1085 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46045] VGAM1085 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46046] VGAM1085 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46047] VGAM1085 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46048] VGAM1085 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46049] VGAM1085 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46050] VGAM1085 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46051] VGAM1085 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host

target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46052] It is appreciated that a function of VGR3335 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3335 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3335 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3335 gene: VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein and

VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085 and VGAM1085

[46053] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3336(VGR3336) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46054] VGR3336 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3336 gene was detected is described hereinabove with reference to Figs. 6-15.

[46055] VGR3336 gene encodes VGR3336 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46056] VGR3336 precursor RNA folds spatially, forming VGR3336 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3336 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3336 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46057] VGR3336 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA and VGAM1085 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46058] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA and VGAM1085 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46059] VGAM1085 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[46060] VGAM1085 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46061] VGAM1085 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1085 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46062] VGAM1085 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46063] VGAM1085 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM1085 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46064] VGAM1085 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46065] VGAM1085 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46066] VGAM1085 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46067] It is appreciated that a function of VGR3336 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3336 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3336 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3336 gene: VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein and VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085 and VGAM1085

[46068] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3337(VGR3337) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46069] VGR3337 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3337 gene was detected is described hereinabove with reference to Figs. 6-15.

[46070] VGR3337 gene encodes VGR3337 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46071] VGR3337 precursor RNA folds spatially, forming VGR3337 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3337 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3337 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46072] VGR3337 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 pre-

cursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA and VGAM1085 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46073] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA and VGAM1085 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46074] VGAM1085 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46075] VGAM1085 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46076] VGAM1085 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46077] VGAM1085 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46078] VGAM1085 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46079] VGAM1085 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46080] VGAM1085 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46081] VGAM1085 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46082] It is appreciated that a function of VGR3337 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3337 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3337 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3337 gene: VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein and VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085 and VGAM1085

[46083] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3338(VGR3338) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46084] VGR3338 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3338 gene was detected is described hereinabove with reference to Figs. 6-15.

[46085] VGR3338 gene encodes VGR3338 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46086] VGR3338 precursor RNA folds spatially, forming VGR3338 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3338 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3338 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46087] VGR3338 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA and VGAM1085 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46088] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA and VGAM1085 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46089] VGAM1085 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46090] VGAM1085 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46091] VGAM1085 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46092] VGAM1085 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46093] VGAM1085 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46094] VGAM1085 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46095] VGAM1085 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46096] VGAM1085 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46097] It is appreciated that a function of VGR3338 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3338 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3338 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3338 gene: VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein and VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through

VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085 and VGAM1085

[46098] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3339(VGR3339) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46099] VGR3339 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3339 gene was detected is described hereinabove with reference to Figs. 6-15.

[46100] VGR3339 gene encodes VGR3339 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46101] VGR3339 precursor RNA folds spatially, forming VGR3339 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3339 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3339 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46102] VGR3339 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA and VGAM1085 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46103] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA and VGAM1085 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46104] VGAM1085 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46105] VGAM1085 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46106] VGAM1085 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46107] VGAM1085 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46108] VGAM1085 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[46109] VGAM1085 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46110] VGAM1085 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1085 host target protein, herein schematically

represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46111] VGAM1085 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46112] It is appreciated that a function of VGR3339 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3339 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3339 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3339 gene: VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein and VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085 and VGAM1085

[46113] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3340(VGR3340) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46114] VGR3340 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3340 gene was

detected is described hereinabove with reference to Figs. 6-15.

[46115] VGR3340 gene encodes VGR3340 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46116] VGR3340 precursor RNA folds spatially, forming VGR3340 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3340 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3340 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46117] VGR3340 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA, VGAM1085 precursor RNA and VGAM1086

precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46118] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA, VGAM1085 RNA and VGAM1086 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46119] VGAM1085 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46120] VGAM1085 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46121] VGAM1085 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46122] VGAM1085 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46123] VGAM1085 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46124] VGAM1085 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46125] VGAM1085 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1085 host

target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1085 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1085 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46126] VGAM1086 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1086 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1086 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1086 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46127] It is appreciated that a function of VGR3340 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3340 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3340 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3340 gene: VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein, VGAM1085 host target protein and VGAM1086 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085, VGAM1085 and VGAM1086

[46128] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3341(VGR3341) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46129] VGR3341 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3341 gene was detected is described hereinabove with reference to Figs. 6-15.

[46130] VGR3341 gene encodes VGR3341 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46131] VGR3341 precursor RNA folds spatially, forming VGR3341 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3341 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3341 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46132] VGR3341 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA and VGAM1087 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46133] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA and VGAM1087 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs correspond-

ing to VGAM RNA of Fig. 8.

[46134] VGAM1087 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46135] VGAM1087 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1087 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46136] VGAM1087 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46137] VGAM1087 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM1087 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46138] VGAM1087 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46139] VGAM1087 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein

schematically represented by VGAM6 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46140] VGAM1087 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46141] VGAM1087 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46142] It is appreciated that a function of VGR3341 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3341 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3341 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3341 gene: VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein and VGAM1087 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with

reference to VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1087 and VGAM1087

[46143] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3342(VGR3342) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46144] VGR3342 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3342 gene was detected is described hereinabove with reference to Figs. 6-15.

[46145] VGR3342 gene encodes VGR3342 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46146] VGR3342 precursor RNA folds spatially, forming VGR3342 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3342 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3342 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46147] VGR3342 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA and VGAM1087 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46148] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA and VGAM1087 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46149] VGAM1087 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46150] VGAM1087 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46151] VGAM1087 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46152] VGAM1087 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46153] VGAM1087 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46154] VGAM1087 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46155] VGAM1087 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46156] VGAM1087 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46157] It is appreciated that a function of VGR3342 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3342 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3342 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3342 gene: VGAM1087 host target protein, VGAM1087 host target

protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein and VGAM1087 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1087 and VGAM1087

[46158] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3343(VGR3343) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46159] VGR3343 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3343 gene was detected is described hereinabove with reference to Figs. 6-15.

[46160] VGR3343 gene encodes VGR3343 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46161] VGR3343 precursor RNA folds spatially, forming VGR3343 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3343 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3343 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46162] VGR3343 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1087 precursor RNA, VGAM1088 precursor RNA and VGAM1089 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-

CURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46163] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1087 RNA, VGAM1088 RNA and VGAM1089 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46164] VGAM1087 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46165] VGAM1087 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46166] VGAM1087 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46167] VGAM1087 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46168] VGAM1087 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46169] VGAM1087 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1087 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1087 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1087 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46170] VGAM1088 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1088 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1088 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1088 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46171] VGAM1089 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1089 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1089 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1089 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46172] It is appreciated that a function of VGR3343 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3343 gene include

diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3343 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3343 gene: VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1087 host target protein, VGAM1088 host target protein and VGAM1089 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1087, VGAM1088 and VGAM1089

[46173] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3344(VGR3344) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[46174] VGR3344 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3344 gene was detected is described hereinabove with reference to Figs. 6-15.

[46175] VGR3344 gene encodes VGR3344 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46176] VGR3344 precursor RNA folds spatially, forming VGR3344 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3344 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3344 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46177] VGR3344 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1090 precursor RNA and VGAM1091 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46178] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1090 RNA and VGAM1091 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46179] VGAM1090 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1090 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1090 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1090 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46180] VGAM1091 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1091 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1091 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1091 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46181] It is appreciated that a function of VGR3344 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3344 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3344 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of

the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3344 gene: VGAM1090 host target protein and VGAM1091 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1090 and VGAM1091

[46182] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3345(VGR3345) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46183] VGR3345 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3345 gene was detected is described hereinabove with reference to Figs. 6-15.

[46184] VGR3345 gene encodes VGR3345 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[46185] VGR3345 precursor RNA folds spatially, forming VGR3345 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3345 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3345 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46186] VGR3345 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1092 precursor RNA, VGAM1093 precursor RNA, VGAM1094 precursor RNA, VGAM1095 precursor RNA, VGAM1096 precursor RNA, VGAM1097 precursor RNA, VGAM1098 precursor RNA and VGAM1099 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRE-

CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46187] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1092 RNA, VGAM1093 RNA, VGAM1094 RNA, VGAM1095 RNA, VGAM1096 RNA, VGAM1097 RNA, VGAM1098 RNA and VGAM1099 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46188] VGAM1092 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1092 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1092 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1092 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46189] VGAM1093 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1093 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1093 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1093 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46190] VGAM1094 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1094 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1094 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1094 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46191] VGAM1095 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1095 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1095 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1095 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46192] VGAM1096 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1096 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1096 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1096 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46193] VGAM1097 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1097 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1097 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1097 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46194] VGAM1098 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1098 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1098 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1098 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46195] VGAM1099 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1099 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1099 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1099 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46196] It is appreciated that a function of VGR3345 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3345 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utili-

ties, of VGR3345 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3345 gene: VGAM1092 host target protein, VGAM1093 host target protein, VGAM1094 host target protein, VGAM1095 host target protein, VGAM1096 host target protein, VGAM1097 host target protein, VGAM1098 host target protein and VGAM1099 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1092, VGAM1093, VGAM1094, VGAM1095, VGAM1096, VGAM1097, VGAM1098 and VGAM1099

[46197] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3346(VGR3346) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46198] VGR3346 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3346 gene was detected is described hereinabove with reference to Figs. 6-15.

[46199] VGR3346 gene encodes VGR3346 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46200] VGR3346 precursor RNA folds spatially, forming VGR3346 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3346 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3346 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46201] VGR3346 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1101 precursor RNA, VGAM1102 pre-

cursor RNA, VGAM1103 precursor RNA, VGAM1104 precursor RNA, VGAM1105 precursor RNA, VGAM1106 precursor RNA, VGAM1107 precursor RNA and VGAM1108 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46202] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1101 RNA, VGAM1102 RNA, VGAM1103 RNA, VGAM1104 RNA, VGAM1105 RNA, VGAM1106 RNA, VGAM1107 RNA and VGAM1108 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46203] VGAM1101 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1101 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1101 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1101 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46204] VGAM1102 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1102 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1102 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1102 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46205] VGAM1103 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1103 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1103 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1103 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46206] VGAM1104 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1104 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1104 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1104 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46207] VGAM1105 RNA, herein schematically represented by

VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1105 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1105 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1105 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46208] VGAM1106 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1106 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1106 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1106 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46209] VGAM1107 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1107 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1107 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1107 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46210] VGAM1108 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1108 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1108 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1108 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[46211] It is appreciated that a function of VGR3346 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3346 gene include diagnosis, prevention and treatment of viral infection by Sheeppox virus. Specific functions, and accordingly utilities, of VGR3346 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3346 gene: VGAM1101 host target protein, VGAM1102 host target protein, VGAM1103 host target protein, VGAM1104 host target protein, VGAM1105 host target protein, VGAM1106 host target protein, VGAM1107 host target protein and VGAM1108 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1101, VGAM1102, VGAM1103, VGAM1104, VGAM1105, VGAM1106, VGAM1107 and VGAM1108

[46212] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3347(VGR3347) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46213] VGR3347 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3347 gene was detected is described hereinabove with reference to Figs. 6-15.

[46214] VGR3347 gene encodes VGR3347 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46215] VGR3347 precursor RNA folds spatially, forming VGR3347 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3347 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3347 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46216] VGR3347 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1109 precursor RNA, VGAM1110 precursor RNA, VGAM1111 precursor RNA, VGAM1112 precursor RNA, VGAM1113 precursor RNA and VGAM1114 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46217] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1109 RNA, VGAM1110 RNA, VGAM1111 RNA, VGAM1112 RNA, VGAM1113 RNA and VGAM1114 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to

VGAM RNA of Fig. 8.

[46218] VGAM1109 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1109 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1109 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1109 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46219] VGAM1110 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1110 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1110 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1110 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46220] VGAM1111 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1111 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1111 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1111 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46221] VGAM1112 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1112 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1112 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM1112 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46222] VGAM1113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46223] VGAM1114 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1114 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1114 host target RNA, herein

schematically represented by VGAM6 HOST TARGET RNA into VGAM1114 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46224] It is appreciated that a function of VGR3347 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3347 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3347 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3347 gene: VGAM1109 host target protein, VGAM1110 host target protein, VGAM1111 host target protein, VGAM1112 host target protein, VGAM1113 host target protein and VGAM1114 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1109, VGAM1110, VGAM1111, VGAM1112, VGAM1113 and VGAM1114

[46225] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3348(VGR3348) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46226] VGR3348 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3348 gene was detected is described hereinabove with reference to Figs. 6-15.

[46227] VGR3348 gene encodes VGR3348 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46228] VGR3348 precursor RNA folds spatially, forming VGR3348 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3348 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3348 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46229] VGR3348 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1115 precursor RNA, VGAM1116 precursor RNA, VGAM1117 precursor RNA, VGAM1118 precursor RNA, VGAM1119 precursor RNA, VGAM1120 precursor RNA, VGAM1121 precursor RNA and VGAM1122 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46230] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1115 RNA, VGAM1116 RNA, VGAM1117 RNA, VGAM1118 RNA, VGAM1119 RNA, VGAM1120 RNA, VGAM1121 RNA and

VGAM1122 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46231] VGAM1115 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1115 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1115 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1115 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46232] VGAM1116 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1116 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1116 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1116 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46233] VGAM1117 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1117 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1117 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1117 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46234] VGAM1118 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1118 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1118 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1118 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46235] VGAM1119 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1119 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1119 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1119 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46236] VGAM1120 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1120 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1120 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1120 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46237] VGAM1121 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1121 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1121 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1121 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46238] VGAM1122 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1122 host

target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1122 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1122 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46239] It is appreciated that a function of VGR3348 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3348 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3348 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3348 gene: VGAM1115 host target protein, VGAM1116 host target protein, VGAM1117 host target protein, VGAM1118 host target protein, VGAM1119 host target protein, VGAM1120 host target protein, VGAM1121 host target protein and

VGAM1122 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1115, VGAM1116, VGAM1117, VGAM1118, VGAM1119, VGAM1120, VGAM1121 and VGAM1122

[46240] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3349(VGR3349) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46241] VGR3349 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3349 gene was detected is described hereinabove with reference to Figs. 6-15.

[46242] VGR3349 gene encodes VGR3349 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46243] VGR3349 precursor RNA folds spatially, forming VGR3349 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3349 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3349 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46244] VGR3349 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1124 precursor RNA, VGAM1125 precursor RNA, VGAM1126 precursor RNA, VGAM1127 precursor RNA, VGAM1128 precursor RNA, VGAM1129 precursor RNA, VGAM1130 precursor RNA and VGAM1131 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46245] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1124 RNA, VGAM1125 RNA, VGAM1126 RNA, VGAM1127 RNA, VGAM1128 RNA, VGAM1129 RNA, VGAM1130 RNA and VGAM1131 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46246] VGAM1124 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1124 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1124 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1124 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[46247] VGAM1125 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1125 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1125 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1125 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46248] VGAM1126 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1126 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1126 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1126 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46249] VGAM1127 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1127 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1127 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1127 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46250] VGAM1128 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1128 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1128 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM1128 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46251] VGAM1129 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1129 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1129 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1129 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46252] VGAM1130 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1130 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1130 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM1130 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46253] VGAM1131 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1131 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1131 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1131 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46254] It is appreciated that a function of VGR3349 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3349 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3349 gene, herein

designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3349 gene: VGAM1124 host target protein, VGAM1125 host target protein, VGAM1126 host target protein, VGAM1127 host target protein, VGAM1128 host target protein, VGAM1129 host target protein, VGAM1130 host target protein and VGAM1131 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1124, VGAM1125, VGAM1126, VGAM1127, VGAM1128, VGAM1129, VGAM1130 and VGAM1131

[46255] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3350(VGR3350) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46256] VGR3350 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3350 gene was detected is described hereinabove with reference to Figs. 6-15.

[46257] VGR3350 gene encodes VGR3350 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46258] VGR3350 precursor RNA folds spatially, forming VGR3350 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3350 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3350 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46259] VGR3350 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1132 precursor RNA, VGAM1133 precursor RNA, VGAM1134 precursor RNA and VGAM1135

precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46260] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1132 RNA, VGAM1133 RNA, VGAM1134 RNA and VGAM1135 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46261] VGAM1132 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1132 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1132 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1132 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46262] VGAM1133 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1133 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1133 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1133 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46263] VGAM1134 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1134 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1134 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM1134 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46264] VGAM1135 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1135 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1135 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1135 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46265] It is appreciated that a function of VGR3350 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3350 gene include diagnosis, prevention and treatment of viral infection by Lumpy skin disease virus. Specific functions, and accordingly utilities, of VGR3350 gene, herein designated VGR

GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3350 gene: VGAM1132 host target protein, VGAM1133 host target protein, VGAM1134 host target protein and VGAM1135 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1132, VGAM1133, VGAM1134 and VGAM1135

[46266] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3351(VGR3351) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46267] VGR3351 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3351 gene was detected is described hereinabove with reference to Figs.

6-15.

[46268] VGR3351 gene encodes VGR3351 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46269] VGR3351 precursor RNA folds spatially, forming VGR3351 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3351 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3351 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46270] VGR3351 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1136 precursor RNA, VGAM1137 precursor RNA and VGAM1138 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA

segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46271] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1136 RNA, VGAM1137 RNA and VGAM1138 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46272] VGAM1136 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1136 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1136 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1136 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46273] VGAM1137 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1137 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1137 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1137 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46274] VGAM1138 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1138 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1138 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1138 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46275] It is appreciated that a function of VGR3351 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3351 gene include diagnosis, prevention and treatment of viral infection by Murid herpesvirus 4. Specific functions, and accordingly utilities, of VGR3351 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3351 gene: VGAM1136 host target protein, VGAM1137 host target protein and VGAM1138 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1136, VGAM1137 and VGAM1138

[46276] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3352(VGR3352) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[46277] VGR3352 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3352 gene was detected is described hereinabove with reference to Figs. 6-15.

[46278] VGR3352 gene encodes VGR3352 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46279] VGR3352 precursor RNA folds spatially, forming VGR3352 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3352 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3352 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46280] VGR3352 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM pre-

cursor RNAs, VGAM1139 precursor RNA, VGAM1140 precursor RNA, VGAM1141 precursor RNA and VGAM1142 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46281] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1139 RNA, VGAM1140 RNA, VGAM1141 RNA and VGAM1142 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46282] VGAM1139 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1139 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1139 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1139 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46283] VGAM1140 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1140 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1140 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1140 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46284] VGAM1141 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1141 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1141 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1141 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46285] VGAM1142 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1142 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1142 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1142 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46286] It is appreciated that a function of VGR3352 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3352 gene include diagnosis, prevention and treatment of viral infection by

Tobacco mild green mosaic virus. Specific functions, and accordingly utilities, of VGR3352 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3352 gene: VGAM1139 host target protein, VGAM1140 host target protein, VGAM1141 host target protein and VGAM1142 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1139, VGAM1140, VGAM1141 and VGAM1142

[46287] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3353(VGR3353) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46288] VGR3353 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3353 gene was detected is described hereinabove with reference to Figs. 6-15.

[46289] VGR3353 gene encodes VGR3353 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46290] VGR3353 precursor RNA folds spatially, forming VGR3353 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3353 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3353 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46291] VGR3353 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1143 precursor RNA, VGAM1144 precursor RNA, VGAM1145 precursor RNA, VGAM1146 precursor RNA, VGAM1147 precursor RNA and VGAM1148

precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46292] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1143 RNA, VGAM1144 RNA, VGAM1145 RNA, VGAM1146 RNA, VGAM1147 RNA and VGAM1148 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46293] VGAM1143 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1143 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1143 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1143 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46294] VGAM1144 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1144 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1144 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1144 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46295] VGAM1145 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1145 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1145 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1145 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46296] VGAM1146 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1146 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1146 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1146 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46297] VGAM1147 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1147 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1147 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1147 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46298] VGAM1148 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1148 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1148 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1148 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46299] It is appreciated that a function of VGR3353 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3353 gene include diagnosis, prevention and treatment of viral infection by

Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3353 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3353 gene: VGAM1143 host target protein, VGAM1144 host target protein, VGAM1145 host target protein, VGAM1146 host target protein, VGAM1147 host target protein and VGAM1148 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1143, VGAM1144, VGAM1145, VGAM1146, VGAM1147 and VGAM1148

[46300] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3354(VGR3354) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46301] VGR3354 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3354 gene was detected is described hereinabove with reference to Figs. 6-15.

[46302] VGR3354 gene encodes VGR3354 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46303] VGR3354 precursor RNA folds spatially, forming VGR3354 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3354 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3354 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46304] VGR3354 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1150 precursor RNA, VGAM1151 precursor RNA, VGAM1152 precursor RNA, VGAM1153 pre-

cursor RNA and VGAM1154 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46305] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1150 RNA, VGAM1151 RNA, VGAM1152 RNA, VGAM1153 RNA and VGAM1154 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46306] VGAM1150 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1150 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1150 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1150 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46307] VGAM1151 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1151 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1151 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1151 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46308] VGAM1152 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1152 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1152 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM1152 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46309] VGAM1153 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1153 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1153 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1153 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46310] VGAM1154 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1154 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1154 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1154 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46311] It is appreciated that a function of VGR3354 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3354 gene include diagnosis, prevention and treatment of viral infection by Tick-borne encephalitis virus. Specific functions, and accordingly utilities, of VGR3354 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3354 gene: VGAM1150 host target protein, VGAM1151 host target protein, VGAM1152 host target protein, VGAM1153 host target protein and VGAM1154 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1150, VGAM1151, VGAM1152, VGAM1153 and

VGAM1154

[46312] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3355(VGR3355) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46313] VGR3355 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3355 gene was detected is described hereinabove with reference to Figs. 6-15.

[46314] VGR3355 gene encodes VGR3355 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46315] VGR3355 precursor RNA folds spatially, forming VGR3355 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3355 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3355 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46316] VGR3355 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1155 precursor RNA, VGAM1156 precursor RNA, VGAM1157 precursor RNA, VGAM1158 precursor RNA, VGAM1159 precursor RNA and VGAM1160 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46317] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1155 RNA, VGAM1156 RNA, VGAM1157 RNA, VGAM1158 RNA, VGAM1159 RNA and VGAM1160 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA,

VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46318] VGAM1155 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1155 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1155 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1155 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46319] VGAM1156 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1156 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1156 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1156 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46320] VGAM1157 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1157 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1157 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1157 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46321] VGAM1158 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1158 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1158 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1158 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46322] VGAM1159 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1159 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1159 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1159 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46323] VGAM1160 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1160 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1160 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1160 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46324] It is appreciated that a function of VGR3355 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3355 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3355 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3355 gene: VGAM1155 host target protein, VGAM1156 host target protein, VGAM1157 host target protein, VGAM1158 host target protein, VGAM1159 host target protein and VGAM1160 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with

reference to VGAM1155, VGAM1156, VGAM1157, VGAM1158, VGAM1159 and VGAM1160

[46325] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3356(VGR3356) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46326] VGR3356 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3356 gene was detected is described hereinabove with reference to Figs. 6-15.

[46327] VGR3356 gene encodes VGR3356 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46328] VGR3356 precursor RNA folds spatially, forming VGR3356 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3356 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3356 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46329] VGR3356 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1161 precursor RNA, VGAM1162 precursor RNA, VGAM1163 precursor RNA, VGAM1164 precursor RNA, VGAM1165 precursor RNA, VGAM1166 precursor RNA and VGAM1167 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46330] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1161 RNA, VGAM1162 RNA, VGAM1163 RNA, VGAM1164 RNA,

VGAM1165 RNA, VGAM1166 RNA and VGAM1167 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46331] VGAM1161 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1161 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1161 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1161 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46332] VGAM1162 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1162 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1162 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1162 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46333] VGAM1163 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1163 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1163 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1163 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46334] VGAM1164 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1164 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1164 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1164 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46335] VGAM1165 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1165 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1165 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1165 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46336] VGAM1166 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1166 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1166 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1166 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46337] VGAM1167 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1167 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1167 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1167 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46338] It is appreciated that a function of VGR3356 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3356 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3356 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3356 gene: VGAM1161 host target protein, VGAM1162 host target protein, VGAM1163 host target protein, VGAM1164 host target protein, VGAM1165 host target protein, VGAM1166 host target protein and VGAM1167 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1161, VGAM1162, VGAM1163, VGAM1164, VGAM1165, VGAM1166 and VGAM1167

[46339] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3357(VGR3357) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[46340] VGR3357 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3357 gene was detected is described hereinabove with reference to Figs. 6-15.

[46341] VGR3357 gene encodes VGR3357 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46342] VGR3357 precursor RNA folds spatially, forming VGR3357 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3357 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3357 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46343] VGR3357 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1168 precursor RNA, VGAM1169 precursor RNA, VGAM1170 precursor RNA, VGAM1171 precursor RNA, VGAM1172 precursor RNA, VGAM1173 precursor RNA, VGAM1174 precursor RNA and VGAM1175 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46344] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1168 RNA, VGAM1169 RNA, VGAM1170 RNA, VGAM1171 RNA, VGAM1172 RNA, VGAM1173 RNA, VGAM1174 RNA and VGAM1175 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46345] VGAM1168 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1168 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1168 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1168 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46346] VGAM1169 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1169 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1169 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1169 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46347] VGAM1170 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1170 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1170 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1170 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46348] VGAM1171 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1171 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1171 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1171 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[46349] VGAM1172 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1172 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1172 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1172 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46350] VGAM1173 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1173 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1173 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1173 host target protein, herein schematically

represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46351] VGAM1174 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1174 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1174 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1174 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46352] VGAM1175 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1175 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1175 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA

into VGAM1175 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46353] It is appreciated that a function of VGR3357 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3357 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3357 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3357 gene: VGAM1168 host target protein, VGAM1169 host target protein, VGAM1170 host target protein, VGAM1171 host target protein, VGAM1172 host target protein, VGAM1173 host target protein, VGAM1174 host target protein and VGAM1175 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1168, VGAM1169, VGAM1170, VGAM1171, VGAM1172, VGAM1173, VGAM1174 and

VGAM1175

[46354] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3358(VGR3358) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46355] VGR3358 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3358 gene was detected is described hereinabove with reference to Figs. 6-15.

[46356] VGR3358 gene encodes VGR3358 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46357] VGR3358 precursor RNA folds spatially, forming VGR3358 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3358 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3358 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46358] VGR3358 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1176 precursor RNA, VGAM1177 precursor RNA and VGAM1178 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46359] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1176 RNA, VGAM1177 RNA and VGAM1178 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46360] VGAM1176 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1176 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1176 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1176 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46361] VGAM1177 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1177 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1177 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1177 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46362] VGAM1178 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1178 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1178 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1178 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46363] It is appreciated that a function of VGR3358 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3358 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3358 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3358 gene: VGAM1176 host target protein, VGAM1177 host target

protein and VGAM1178 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1176, VGAM1177 and VGAM1178

[46364] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3359(VGR3359) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46365] VGR3359 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3359 gene was detected is described hereinabove with reference to Figs. 6-15.

[46366] VGR3359 gene encodes VGR3359 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46367] VGR3359 precursor RNA folds spatially, forming VGR3359

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3359 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3359 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46368] VGR3359 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1179 precursor RNA, VGAM1180 precursor RNA, VGAM1181 precursor RNA, VGAM1182 precursor RNA, VGAM1183 precursor RNA and VGAM1184 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46369] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1179 RNA, VGAM1180 RNA, VGAM1181 RNA, VGAM1182 RNA, VGAM1183 RNA and VGAM1184 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46370] VGAM1179 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1179 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1179 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1179 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46371] VGAM1180 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1180 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1180 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1180 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46372] VGAM1181 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1181 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1181 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1181 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46373] VGAM1182 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1182 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1182 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1182 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46374] VGAM1183 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1183 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1183 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1183 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46375] VGAM1184 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1184 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1184 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1184 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46376] It is appreciated that a function of VGR3359 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3359 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 4. Specific functions, and accordingly utilities, of VGR3359 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3359 gene: VGAM1179 host target protein, VGAM1180 host target protein, VGAM1181 host target protein, VGAM1182 host

target protein, VGAM1183 host target protein and VGAM1184 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1179, VGAM1180, VGAM1181, VGAM1182, VGAM1183 and VGAM1184

[46377] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3360(VGR3360) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46378] VGR3360 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3360 gene was detected is described hereinabove with reference to Figs. 6-15.

[46379] VGR3360 gene encodes VGR3360 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46380] VGR3360 precursor RNA folds spatially, forming VGR3360 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3360 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3360 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46381] VGR3360 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1185 precursor RNA, VGAM1186 precursor RNA, VGAM1187 precursor RNA, VGAM1188 precursor RNA, VGAM1189 precursor RNA, VGAM1190 precursor RNA and VGAM1191 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to

VGAM PRECURSOR RNA of Fig. 8.

[46382] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1185 RNA, VGAM1186 RNA, VGAM1187 RNA, VGAM1188 RNA, VGAM1189 RNA, VGAM1190 RNA and VGAM1191 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46383] VGAM1185 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1185 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1185 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1185 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46384] VGAM1186 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1186 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1186 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1186 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46385] VGAM1187 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1187 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1187 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1187 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46386] VGAM1188 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1188 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1188 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1188 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46387] VGAM1189 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1189 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1189 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1189 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[46388] VGAM1190 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1190 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1190 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1190 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46389] VGAM1191 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1191 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1191 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1191 host target protein, herein schematically

represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46390] It is appreciated that a function of VGR3360 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3360 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3360 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3360 gene: VGAM1185 host target protein, VGAM1186 host target protein, VGAM1187 host target protein, VGAM1188 host target protein, VGAM1189 host target protein, VGAM1190 host target protein and VGAM1191 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1185, VGAM1186, VGAM1187, VGAM1188, VGAM1189, VGAM1190 and VGAM1191

[46391] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3361(VGR3361) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46392] VGR3361 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3361 gene was detected is described hereinabove with reference to Figs. 6-15.

[46393] VGR3361 gene encodes VGR3361 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46394] VGR3361 precursor RNA folds spatially, forming VGR3361 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3361 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3361 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46395] VGR3361 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1192 precursor RNA, VGAM1193 precursor RNA, VGAM1194 precursor RNA, VGAM1195 precursor RNA, VGAM1196 precursor RNA and VGAM1197 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46396] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1192 RNA, VGAM1193 RNA, VGAM1194 RNA, VGAM1195 RNA, VGAM1196 RNA and VGAM1197 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to

VGAM RNA of Fig. 8.

[46397] VGAM1192 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1192 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1192 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1192 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46398] VGAM1193 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1193 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1193 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1193 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46399] VGAM1194 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1194 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1194 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1194 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46400] VGAM1195 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1195 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1195 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM1195 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46401] VGAM1196 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1196 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1196 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1196 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46402] VGAM1197 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1197 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1197 host target RNA, herein

schematically represented by VGAM6 HOST TARGET RNA into VGAM1197 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46403] It is appreciated that a function of VGR3361 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3361 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3361 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3361 gene: VGAM1192 host target protein, VGAM1193 host target protein, VGAM1194 host target protein, VGAM1195 host target protein, VGAM1196 host target protein and VGAM1197 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1192, VGAM1193, VGAM1194, VGAM1195, VGAM1196 and VGAM1197

[46404] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3362(VGR3362) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46405] VGR3362 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3362 gene was detected is described hereinabove with reference to Figs. 6-15.

[46406] VGR3362 gene encodes VGR3362 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46407] VGR3362 precursor RNA folds spatially, forming VGR3362 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3362 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3362 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46408] VGR3362 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1198 precursor RNA and VGAM1199 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46409] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1198 RNA and VGAM1199 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46410] VGAM1198 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1198 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1198 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1198 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46411] VGAM1199 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1199 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1199 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1199 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46412] It is appreciated that a function of VGR3362 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3362 gene include diagnosis, prevention and treatment of viral infection by Tupaia paramyxovirus. Specific functions, and accordingly utilities, of VGR3362 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3362 gene: VGAM1198 host target protein and VGAM1199 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1198 and VGAM1199

[46413] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3363(VGR3363) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46414] VGR3363 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3363 gene was detected is described hereinabove with reference to Figs. 6-15.

[46415] VGR3363 gene encodes VGR3363 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46416] VGR3363 precursor RNA folds spatially, forming VGR3363 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3363 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3363 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46417] VGR3363 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1200 precursor RNA, VGAM1201 precursor RNA, VGAM1202 precursor RNA, VGAM1203 pre-

cursor RNA, VGAM1204 precursor RNA, VGAM1205 precursor RNA, VGAM1206 precursor RNA and VGAM1207 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46418] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1200 RNA, VGAM1201 RNA, VGAM1202 RNA, VGAM1203 RNA, VGAM1204 RNA, VGAM1205 RNA, VGAM1206 RNA and VGAM1207 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46419] VGAM1200 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1200 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1200 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1200 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46420] VGAM1201 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1201 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1201 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1201 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46421] VGAM1202 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1202 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1202 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1202 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46422] VGAM1203 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1203 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1203 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1203 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46423] VGAM1204 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1204 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1204 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1204 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46424] VGAM1205 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1205 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1205 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1205 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46425] VGAM1206 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1206 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1206 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1206 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46426] VGAM1207 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1207 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1207 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1207 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46427] It is appreciated that a function of VGR3363 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3363 gene include diagnosis, prevention and treatment of viral infection by Alcelaphine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3363 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3363 gene: VGAM1200 host target protein, VGAM1201 host target protein, VGAM1202 host target protein, VGAM1203 host target protein, VGAM1204 host target protein, VGAM1205 host target protein, VGAM1206 host target protein and VGAM1207 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1200, VGAM1201, VGAM1202, VGAM1203, VGAM1204, VGAM1205, VGAM1206 and VGAM1207

[46428] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3364(VGR3364) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46429] VGR3364 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3364 gene was detected is described hereinabove with reference to Figs. 6-15.

[46430] VGR3364 gene encodes VGR3364 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46431] VGR3364 precursor RNA folds spatially, forming VGR3364 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3364 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3364 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46432] VGR3364 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1208 precursor RNA, VGAM1209 precursor RNA, VGAM1210 precursor RNA and VGAM1211 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46433] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1208 RNA, VGAM1209 RNA, VGAM1210 RNA and VGAM1211 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46434] VGAM1208 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1208 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1208 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1208 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46435] VGAM1209 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1209 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1209 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1209 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46436] VGAM1210 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1210 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1210 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1210 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46437] VGAM1211 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1211 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1211 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1211 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46438] It is appreciated that a function of VGR3364 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3364 gene include diagnosis, prevention and treatment of viral infection by Saimiriine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3364 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3364 gene: VGAM1208 host target protein, VGAM1209 host target protein, VGAM1210 host target protein and VGAM1211 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1208, VGAM1209, VGAM1210 and VGAM1211

[46439] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3365(VGR3365) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46440] VGR3365 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3365 gene was detected is described hereinabove with reference to Figs. 6-15.

[46441] VGR3365 gene encodes VGR3365 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46442] VGR3365 precursor RNA folds spatially, forming VGR3365 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3365 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3365 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46443] VGR3365 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1212 precursor RNA and VGAM1213 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46444] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1212 RNA and VGAM1213 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46445] VGAM1212 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1212 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1212 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1212 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46446] VGAM1213 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1213 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1213 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1213 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46447] It is appreciated that a function of VGR3365 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3365 gene include diagnosis, prevention and treatment of viral infection by Murine adenovirus A. Specific functions, and accordingly utilities, of VGR3365 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3365 gene: VGAM1212 host target protein and VGAM1213 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1212 and VGAM1213

[46448] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3366(VGR3366) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46449] VGR3366 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3366 gene was detected is described hereinabove with reference to Figs. 6-15.

[46450] VGR3366 gene encodes VGR3366 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46451] VGR3366 precursor RNA folds spatially, forming VGR3366 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3366 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3366 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46452] VGR3366 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1214 precursor RNA, VGAM1215 precursor RNA, VGAM1216 precursor RNA, VGAM1217 precursor RNA, VGAM1218 precursor RNA, VGAM1219 precursor RNA, VGAM1220 precursor RNA and VGAM1221 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR,

VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46453] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1214 RNA, VGAM1215 RNA, VGAM1216 RNA, VGAM1217 RNA, VGAM1218 RNA, VGAM1219 RNA, VGAM1220 RNA and VGAM1221 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46454] VGAM1214 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1214 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1214 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1214 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46455] VGAM1215 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1215 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1215 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1215 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46456] VGAM1216 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1216 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1216 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM1216 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46457] VGAM1217 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1217 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1217 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1217 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46458] VGAM1218 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1218 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1218 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1218 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46459] VGAM1219 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1219 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1219 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1219 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46460] VGAM1220 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1220 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1220 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1220 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46461] VGAM1221 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1221 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1221 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1221 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46462] It is appreciated that a function of VGR3366 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3366 gene include diagnosis, prevention and treatment of viral infection by

Infectious hypodermal and hematopoietic necrosis virus. Specific functions, and accordingly utilities, of VGR3366 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3366 gene: VGAM1214 host target protein, VGAM1215 host target protein, VGAM1216 host target protein, VGAM1217 host target protein, VGAM1218 host target protein, VGAM1219 host target protein, VGAM1220 host target protein and VGAM1221 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1214, VGAM1215, VGAM1216, VGAM1217, VGAM1218, VGAM1219, VGAM1220 and VGAM1221

[46463] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3367(VGR3367) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[46464] VGR3367 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3367 gene was detected is described hereinabove with reference to Figs. 6-15.

[46465] VGR3367 gene encodes VGR3367 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46466] VGR3367 precursor RNA folds spatially, forming VGR3367 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3367 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3367 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46467] VGR3367 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1222 precursor RNA and VGAM1223 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46468] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1222 RNA and VGAM1223 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46469] VGAM1222 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1222 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1222 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1222 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46470] VGAM1223 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1223 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1223 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1223 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46471] It is appreciated that a function of VGR3367 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3367 gene include diagnosis, prevention and treatment of viral infection by Infectious hypodermal and hematopoietic necrosis virus. Specific functions, and accordingly utilities, of VGR3367 gene, herein designated VGR GENE, correlate with, and

may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3367 gene: VGAM1222 host target protein and VGAM1223 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1222 and VGAM1223

[46472] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3368(VGR3368) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46473] VGR3368 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3368 gene was detected is described hereinabove with reference to Figs. 6-15.

[46474] VGR3368 gene encodes VGR3368 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[46475] VGR3368 precursor RNA folds spatially, forming VGR3368 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3368 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3368 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46476] VGR3368 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1224 precursor RNA, VGAM1225 precursor RNA, VGAM1226 precursor RNA, VGAM1227 precursor RNA, VGAM1228 precursor RNA, VGAM1229 precursor RNA, VGAM1230 precursor RNA and VGAM1231 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRE-

CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46477] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1224 RNA, VGAM1225 RNA, VGAM1226 RNA, VGAM1227 RNA, VGAM1228 RNA, VGAM1229 RNA, VGAM1230 RNA and VGAM1231 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46478] VGAM1224 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1224 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1224 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1224 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46479] VGAM1225 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1225 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1225 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1225 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46480] VGAM1226 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1226 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1226 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1226 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46481] VGAM1227 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1227 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1227 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1227 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46482] VGAM1228 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1228 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1228 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1228 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46483] VGAM1229 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1229 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1229 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1229 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46484] VGAM1230 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1230 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1230 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1230 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46485] VGAM1231 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1231 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1231 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1231 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46486] It is appreciated that a function of VGR3368 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3368 gene include diagnosis, prevention and treatment of viral infection by Yaba-like disease virus. Specific functions, and accord-

ingly utilities, of VGR3368 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3368 gene: VGAM1224 host target protein, VGAM1225 host target protein, VGAM1226 host target protein, VGAM1227 host target protein, VGAM1228 host target protein, VGAM1229 host target protein, VGAM1230 host target protein and VGAM1231 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1224, VGAM1225, VGAM1226, VGAM1227, VGAM1228, VGAM1229, VGAM1230 and VGAM1231

[46487] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3369(VGR3369) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46488] VGR3369 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3369 gene was detected is described hereinabove with reference to Figs. 6-15.

[46489] VGR3369 gene encodes VGR3369 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46490] VGR3369 precursor RNA folds spatially, forming VGR3369 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3369 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3369 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46491] VGR3369 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1232 precursor RNA and VGAM1233

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46492] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1232 RNA and VGAM1233 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46493] VGAM1232 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1232 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1232 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1232 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[46494] VGAM1233 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1233 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1233 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1233 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46495] It is appreciated that a function of VGR3369 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3369 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3369 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of

VGR3369 gene: VGAM1232 host target protein and VGAM1233 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1232 and VGAM1233

[46496] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3370(VGR3370) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46497] VGR3370 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3370 gene was detected is described hereinabove with reference to Figs. 6-15.

[46498] VGR3370 gene encodes VGR3370 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46499] VGR3370 precursor RNA folds spatially, forming VGR3370

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3370 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3370 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46500] VGR3370 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1234 precursor RNA and VGAM1235 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46501] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1234 RNA and VGAM1235 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46502] VGAM1234 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1234 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1234 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1234 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46503] VGAM1235 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1235 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1235 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1235 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46504] It is appreciated that a function of VGR3370 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3370 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3370 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3370 gene: VGAM1234 host target protein and VGAM1235 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1234 and VGAM1235

[46505] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3371(VGR3371) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46506] VGR3371 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3371 gene was detected is described hereinabove with reference to Figs. 6-15.

[46507] VGR3371 gene encodes VGR3371 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46508] VGR3371 precursor RNA folds spatially, forming VGR3371 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3371 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3371 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[46509] VGR3371 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1237 precursor RNA, VGAM1238 precursor RNA, VGAM1239 precursor RNA, VGAM1240 precursor RNA, VGAM1241 precursor RNA, VGAM1242 precursor RNA and VGAM1243 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46510] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1237 RNA, VGAM1238 RNA, VGAM1239 RNA, VGAM1240 RNA, VGAM1241 RNA, VGAM1242 RNA and VGAM1243 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46511] VGAM1237 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1237 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1237 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1237 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46512] VGAM1238 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1238 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1238 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1238 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[46513] VGAM1239 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1239 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1239 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1239 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46514] VGAM1240 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1240 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1240 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1240 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46515] VGAM1241 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1241 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1241 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1241 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46516] VGAM1242 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1242 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1242 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM1242 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46517] VGAM1243 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1243 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1243 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1243 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46518] It is appreciated that a function of VGR3371 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3371 gene include diagnosis, prevention and treatment of viral infection by Yaba-like disease virus. Specific functions, and accordingly utilities, of VGR3371 gene, herein designated VGR GENE, correlate with, and may be deduced from, the iden-

tity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3371 gene: VGAM1237 host target protein, VGAM1238 host target protein, VGAM1239 host target protein, VGAM1240 host target protein, VGAM1241 host target protein, VGAM1242 host target protein and VGAM1243 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1237, VGAM1238, VGAM1239, VGAM1240, VGAM1241, VGAM1242 and VGAM1243

[46519] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3372(VGR3372) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46520] VGR3372 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3372 gene was

detected is described hereinabove with reference to Figs. 6-15.

[46521] VGR3372 gene encodes VGR3372 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46522] VGR3372 precursor RNA folds spatially, forming VGR3372 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3372 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3372 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46523] VGR3372 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1245 precursor RNA, VGAM1246 precursor RNA and VGAM1247 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46524] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1245 RNA, VGAM1246 RNA and VGAM1247 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46525] VGAM1245 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1245 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1245 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1245 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46526] VGAM1246 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1246 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1246 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1246 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46527] VGAM1247 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1247 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1247 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1247 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46528] It is appreciated that a function of VGR3372 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3372 gene include diagnosis, prevention and treatment of viral infection by Nudaurelia capensis beta virus. Specific functions, and accordingly utilities, of VGR3372 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3372 gene: VGAM1245 host target protein, VGAM1246 host target protein and VGAM1247 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1245, VGAM1246 and VGAM1247

[46529] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3373(VGR3373) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[46530] VGR3373 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3373 gene was detected is described hereinabove with reference to Figs. 6-15.

[46531] VGR3373 gene encodes VGR3373 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46532] VGR3373 precursor RNA folds spatially, forming VGR3373 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3373 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3373 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46533] VGR3373 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1249 precursor RNA, VGAM1250 precursor RNA, VGAM1251 precursor RNA and VGAM1252 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46534] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1249 RNA, VGAM1250 RNA, VGAM1251 RNA and VGAM1252 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46535] VGAM1249 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1249 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1249 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1249 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46536] VGAM1250 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1250 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1250 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1250 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46537] VGAM1251 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1251 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1251 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1251 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46538] VGAM1252 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1252 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1252 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1252 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46539] It is appreciated that a function of VGR3373 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3373 gene include

diagnosis, prevention and treatment of viral infection by Saimiriine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3373 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3373 gene: VGAM1249 host target protein, VGAM1250 host target protein, VGAM1251 host target protein and VGAM1252 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1249, VGAM1250, VGAM1251 and VGAM1252

[46540] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3374(VGR3374) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46541] VGR3374 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3374 gene was detected is described hereinabove with reference to Figs. 6-15.

[46542] VGR3374 gene encodes VGR3374 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46543] VGR3374 precursor RNA folds spatially, forming VGR3374 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3374 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3374 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46544] VGR3374 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1253 precursor RNA, VGAM1254 precursor RNA, VGAM1255 precursor RNA, VGAM1256 pre-

cursor RNA, VGAM1257 precursor RNA, VGAM1258 precursor RNA, VGAM1259 precursor RNA and VGAM1260 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46545] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1253 RNA, VGAM1254 RNA, VGAM1255 RNA, VGAM1256 RNA, VGAM1257 RNA, VGAM1258 RNA, VGAM1259 RNA and VGAM1260 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46546] VGAM1253 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1253 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1253 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1253 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46547] VGAM1254 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1254 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1254 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1254 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46548] VGAM1255 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1255 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1255 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1255 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46549] VGAM1256 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1256 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1256 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1256 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46550] VGAM1257 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1257 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1257 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1257 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46551] VGAM1258 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1258 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1258 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1258 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46552] VGAM1259 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1259 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1259 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1259 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46553] VGAM1260 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1260 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1260 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1260 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46554] It is appreciated that a function of VGR3374 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3374 gene include diagnosis, prevention and treatment of viral infection by Ateline herpesvirus 3. Specific functions, and accordingly utilities, of VGR3374 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3374 gene: VGAM1253 host target protein, VGAM1254 host target protein, VGAM1255 host target protein, VGAM1256 host target protein, VGAM1257 host target protein, VGAM1258 host target protein, VGAM1259 host target protein and VGAM1260 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1253, VGAM1254, VGAM1255, VGAM1256, VGAM1257, VGAM1258, VGAM1259 and VGAM1260

[46555] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3375(VGR3375) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46556] VGR3375 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3375 gene was detected is described hereinabove with reference to Figs. 6-15.

[46557] VGR3375 gene encodes VGR3375 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46558] VGR3375 precursor RNA folds spatially, forming VGR3375 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3375 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3375 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46559] VGR3375 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1261 precursor RNA, VGAM1262 precursor RNA, VGAM1263 precursor RNA, VGAM1264 precursor RNA, VGAM1265 precursor RNA and VGAM1266 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46560] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1261 RNA, VGAM1262 RNA, VGAM1263 RNA, VGAM1264 RNA, VGAM1265 RNA and VGAM1266 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46561] VGAM1261 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1261 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1261 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1261 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46562] VGAM1262 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1262 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1262 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1262 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[46563] VGAM1263 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1263 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1263 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1263 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46564] VGAM1264 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1264 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1264 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1264 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46565] VGAM1265 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1265 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1265 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1265 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46566] VGAM1266 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1266 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1266 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM1266 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46567] It is appreciated that a function of VGR3375 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3375 gene include diagnosis, prevention and treatment of viral infection by Fowl adenovirus A. Specific functions, and accordingly utilities, of VGR3375 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3375 gene: VGAM1261 host target protein, VGAM1262 host target protein, VGAM1263 host target protein, VGAM1264 host target protein, VGAM1265 host target protein and VGAM1266 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1261, VGAM1262, VGAM1263, VGAM1264, VGAM1265 and VGAM1266

[46568] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3376(VGR3376) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46569] VGR3376 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3376 gene was detected is described hereinabove with reference to Figs. 6-15.

[46570] VGR3376 gene encodes VGR3376 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46571] VGR3376 precursor RNA folds spatially, forming VGR3376 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3376 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3376 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46572] VGR3376 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1268 precursor RNA, VGAM1269 precursor RNA, VGAM1270 precursor RNA, VGAM1271 precursor RNA, VGAM1272 precursor RNA, VGAM1273 precursor RNA, VGAM1274 precursor RNA and VGAM1275 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46573] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1268 RNA, VGAM1269 RNA, VGAM1270 RNA, VGAM1271 RNA, VGAM1272 RNA, VGAM1273 RNA, VGAM1274 RNA and VGAM1275 RNA respectively, herein schematically repre-

sented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46574] VGAM1268 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1268 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1268 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1268 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46575] VGAM1269 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1269 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1269 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1269 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46576] VGAM1270 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1270 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1270 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1270 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46577] VGAM1271 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1271 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1271 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1271 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46578] VGAM1272 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1272 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1272 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1272 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46579] VGAM1273 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1273 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1273 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1273 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46580] VGAM1274 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1274 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1274 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1274 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46581] VGAM1275 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1275 host target RNA, herein schematically represented by VGAM8

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1275 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1275 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46582] It is appreciated that a function of VGR3376 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3376 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 6. Specific functions, and accordingly utilities, of VGR3376 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3376 gene: VGAM1268 host target protein, VGAM1269 host target protein, VGAM1270 host target protein, VGAM1271 host target protein, VGAM1272 host target protein, VGAM1273 host target protein, VGAM1274 host target protein and VGAM1275 host target protein, herein schematically rep-

resented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1268, VGAM1269, VGAM1270, VGAM1271, VGAM1272, VGAM1273, VGAM1274 and VGAM1275

[46583] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3377(VGR3377) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46584] VGR3377 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3377 gene was detected is described hereinabove with reference to Figs. 6-15.

[46585] VGR3377 gene encodes VGR3377 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46586] VGR3377 precursor RNA folds spatially, forming VGR3377

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3377 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3377 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46587] VGR3377 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1276 precursor RNA and VGAM1277 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46588] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1276 RNA and VGAM1277 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46589] VGAM1276 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1276 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1276 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1276 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46590] VGAM1277 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1277 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1277 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1277 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46591] It is appreciated that a function of VGR3377 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3377 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 6. Specific functions, and accordingly utilities, of VGR3377 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3377 gene: VGAM1276 host target protein and VGAM1277 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1276 and VGAM1277

[46592] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3378(VGR3378) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46593] VGR3378 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3378 gene was detected is described hereinabove with reference to Figs. 6-15.

[46594] VGR3378 gene encodes VGR3378 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46595] VGR3378 precursor RNA folds spatially, forming VGR3378 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3378 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3378 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[46596] VGR3378 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1278 precursor RNA, VGAM1279 precursor RNA, VGAM1280 precursor RNA, VGAM1281 precursor RNA, VGAM1282 precursor RNA, VGAM1283 precursor RNA, VGAM1284 precursor RNA and VGAM1285 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46597] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1278 RNA, VGAM1279 RNA, VGAM1280 RNA, VGAM1281 RNA, VGAM1282 RNA, VGAM1283 RNA, VGAM1284 RNA and VGAM1285 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46598] VGAM1278 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1278 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1278 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1278 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46599] VGAM1279 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1279 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1279 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1279 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46600] VGAM1280 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1280 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1280 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1280 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46601] VGAM1281 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1281 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1281 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM1281 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46602] VGAM1282 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1282 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1282 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1282 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46603] VGAM1283 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1283 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1283 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1283 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46604] VGAM1284 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1284 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1284 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1284 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46605] VGAM1285 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1285 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1285 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1285 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46606] It is appreciated that a function of VGR3378 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3378 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3378 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3378 gene: VGAM1278 host target protein, VGAM1279 host target protein, VGAM1280 host target protein, VGAM1281 host target protein, VGAM1282 host target protein, VGAM1283 host target protein, VGAM1284 host target protein and VGAM1285 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function

of these host target genes is elaborated hereinabove with reference to VGAM1278, VGAM1279, VGAM1280, VGAM1281, VGAM1282, VGAM1283, VGAM1284 and VGAM1285

[46607] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3379(VGR3379) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46608] VGR3379 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3379 gene was detected is described hereinabove with reference to Figs. 6-15.

[46609] VGR3379 gene encodes VGR3379 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46610] VGR3379 precursor RNA folds spatially, forming VGR3379 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3379 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3379 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46611] VGR3379 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1287 precursor RNA, VGAM1288 precursor RNA, VGAM1289 precursor RNA, VGAM1290 precursor RNA, VGAM1291 precursor RNA, VGAM1292 precursor RNA, VGAM1293 precursor RNA and VGAM1294 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46612] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1287 RNA, VGAM1288 RNA, VGAM1289 RNA, VGAM1290 RNA, VGAM1291 RNA, VGAM1292 RNA, VGAM1293 RNA and VGAM1294 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46613] VGAM1287 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1287 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1287 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1287 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46614] VGAM1288 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1288 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1288 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1288 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46615] VGAM1289 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1289 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1289 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1289 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46616] VGAM1290 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1290 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1290 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1290 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46617] VGAM1291 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1291 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1291 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1291 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46618] VGAM1292 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1292 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1292 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1292 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46619] VGAM1293 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1293 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1293 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1293 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[46620] VGAM1294 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1294 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1294 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1294 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46621] It is appreciated that a function of VGR3379 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3379 gene include diagnosis, prevention and treatment of viral infection by Yaba-like disease virus. Specific functions, and accordingly utilities, of VGR3379 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3379

gene: VGAM1287 host target protein, VGAM1288 host target protein, VGAM1289 host target protein, VGAM1290 host target protein, VGAM1291 host target protein, VGAM1292 host target protein, VGAM1293 host target protein and VGAM1294 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1287, VGAM1288, VGAM1289, VGAM1290, VGAM1291, VGAM1292, VGAM1293 and VGAM1294

[46622] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3380(VGR3380) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46623] VGR3380 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3380 gene was detected is described hereinabove with reference to Figs.

6-15.

[46624] VGR3380 gene encodes VGR3380 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46625] VGR3380 precursor RNA folds spatially, forming VGR3380 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3380 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3380 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46626] VGR3380 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1295 precursor RNA, VGAM1296 precursor RNA, VGAM1297 precursor RNA and VGAM1298 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46627] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1295 RNA, VGAM1296 RNA, VGAM1297 RNA and VGAM1298 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46628] VGAM1295 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1295 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1295 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1295 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46629] VGAM1296 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1296 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1296 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1296 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46630] VGAM1297 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1297 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1297 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1297 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[46631] VGAM1298 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1298 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1298 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1298 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46632] It is appreciated that a function of VGR3380 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3380 gene include diagnosis, prevention and treatment of viral infection by Yaba-like disease virus. Specific functions, and accordingly utilities, of VGR3380 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3380

gene: VGAM1295 host target protein, VGAM1296 host target protein, VGAM1297 host target protein and VGAM1298 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1295, VGAM1296, VGAM1297 and VGAM1298

[46633] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3381(VGR3381) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46634] VGR3381 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3381 gene was detected is described hereinabove with reference to Figs. 6-15.

[46635] VGR3381 gene encodes VGR3381 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[46636] VGR3381 precursor RNA folds spatially, forming VGR3381 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3381 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3381 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46637] VGR3381 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1299 precursor RNA, VGAM1300 precursor RNA, VGAM1301 precursor RNA, VGAM1302 precursor RNA, VGAM1303 precursor RNA, VGAM1304 precursor RNA, VGAM1305 precursor RNA and VGAM1306 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRE-

CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46638] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1299 RNA, VGAM1300 RNA, VGAM1301 RNA, VGAM1302 RNA, VGAM1303 RNA, VGAM1304 RNA, VGAM1305 RNA and VGAM1306 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46639] VGAM1299 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1299 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1299 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1299 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46640] VGAM1300 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1300 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1300 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1300 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46641] VGAM1301 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1301 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1301 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1301 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46642] VGAM1302 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1302 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1302 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1302 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46643] VGAM1303 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1303 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1303 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1303 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46644] VGAM1304 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1304 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1304 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1304 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46645] VGAM1305 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1305 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1305 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1305 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46646] VGAM1306 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1306 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1306 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1306 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46647] It is appreciated that a function of VGR3381 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3381 gene include diagnosis, prevention and treatment of viral infection by Yaba-like disease virus. Specific functions, and accord-

ingly utilities, of VGR3381 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3381 gene: VGAM1299 host target protein, VGAM1300 host target protein, VGAM1301 host target protein, VGAM1302 host target protein, VGAM1303 host target protein, VGAM1304 host target protein, VGAM1305 host target protein and VGAM1306 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1299, VGAM1300, VGAM1301, VGAM1302, VGAM1303, VGAM1304, VGAM1305 and VGAM1306

[46648] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3382(VGR3382) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46649] VGR3382 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3382 gene was detected is described hereinabove with reference to Figs. 6-15.

[46650] VGR3382 gene encodes VGR3382 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46651] VGR3382 precursor RNA folds spatially, forming VGR3382 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3382 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3382 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46652] VGR3382 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1308 precursor RNA, VGAM1309 pre-

cursor RNA, VGAM1310 precursor RNA, VGAM1311 precursor RNA, VGAM1312 precursor RNA, VGAM1312 precursor RNA, VGAM1312 precursor RNA and VGAM1313 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46653] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1308 RNA, VGAM1309 RNA, VGAM1310 RNA, VGAM1311 RNA, VGAM1312 RNA, VGAM1312 RNA, VGAM1312 RNA and VGAM1313 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46654] VGAM1308 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1308 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1308 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1308 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46655] VGAM1309 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1309 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1309 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1309 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46656] VGAM1310 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1310 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1310 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1310 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46657] VGAM1311 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1311 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1311 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1311 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46658] VGAM1312 RNA, herein schematically represented by

VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1312 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1312 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1312 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46659] VGAM1312 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1312 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1312 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1312 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46660] VGAM1312 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1312 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1312 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1312 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46661] VGAM1313 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1313 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1313 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1313 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[46662] It is appreciated that a function of VGR3382 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3382 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3382 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3382 gene: VGAM1308 host target protein, VGAM1309 host target protein, VGAM1310 host target protein, VGAM1311 host target protein, VGAM1312 host target protein, VGAM1312 host target protein, VGAM1312 host target protein and VGAM1313 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1308, VGAM1309, VGAM1310, VGAM1311, VGAM1312, VGAM1312, VGAM1312 and VGAM1313

[46663] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3383(VGR3383) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46664] VGR3383 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3383 gene was detected is described hereinabove with reference to Figs. 6-15.

[46665] VGR3383 gene encodes VGR3383 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46666] VGR3383 precursor RNA folds spatially, forming VGR3383 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3383 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3383 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46667] VGR3383 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1314 precursor RNA and VGAM1315 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46668] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1314 RNA and VGAM1315 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46669] VGAM1314 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1314 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1314 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1314 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46670] VGAM1315 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1315 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1315 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1315 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46671] It is appreciated that a function of VGR3383 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3383 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3383 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3383 gene: VGAM1314 host target protein and VGAM1315 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1314 and VGAM1315

[46672] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3384(VGR3384) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46673] VGR3384 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3384 gene was detected is described hereinabove with reference to Figs. 6-15.

[46674] VGR3384 gene encodes VGR3384 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46675] VGR3384 precursor RNA folds spatially, forming VGR3384 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3384 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3384 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46676] VGR3384 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1316 precursor RNA, VGAM1317 precursor RNA, VGAM1318 precursor RNA, VGAM1319 precursor RNA, VGAM1320 precursor RNA, VGAM1321 pre-

cursor RNA, VGAM1322 precursor RNA and VGAM1323 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46677] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1316 RNA, VGAM1317 RNA, VGAM1318 RNA, VGAM1319 RNA, VGAM1320 RNA, VGAM1321 RNA, VGAM1322 RNA and VGAM1323 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46678] VGAM1316 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1316 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1316 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1316 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46679] VGAM1317 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1317 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1317 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1317 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46680] VGAM1318 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1318 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1318 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1318 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46681] VGAM1319 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1319 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1319 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1319 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46682] VGAM1320 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1320 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1320 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1320 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46683] VGAM1321 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1321 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1321 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1321 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46684] VGAM1322 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1322 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1322 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1322 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46685] VGAM1323 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1323 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1323 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1323 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46686] It is appreciated that a function of VGR3384 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3384 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 84. Specific functions, and accordingly utilities, of VGR3384 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3384 gene: VGAM1316 host target protein, VGAM1317 host target protein, VGAM1318 host target protein, VGAM1319 host target protein, VGAM1320 host target protein, VGAM1321 host target protein, VGAM1322 host target protein and VGAM1323 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1316, VGAM1317, VGAM1318, VGAM1319, VGAM1320, VGAM1321, VGAM1322 and VGAM1323

[46687] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3385(VGR3385) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46688] VGR3385 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3385 gene was detected is described hereinabove with reference to Figs. 6-15.

[46689] VGR3385 gene encodes VGR3385 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46690] VGR3385 precursor RNA folds spatially, forming VGR3385 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3385 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3385 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[46691] VGR3385 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1325 precursor RNA, VGAM1326 precursor RNA, VGAM1327 precursor RNA, VGAM1328 precursor RNA, VGAM1329 precursor RNA, VGAM1329 precursor RNA, VGAM1329 precursor RNA and VGAM1329 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46692] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1325 RNA, VGAM1326 RNA, VGAM1327 RNA, VGAM1328 RNA, VGAM1329 RNA, VGAM1329 RNA, VGAM1329 RNA and VGAM1329 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46693] VGAM1325 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1325 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1325 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1325 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46694] VGAM1326 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1326 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1326 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1326 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46695] VGAM1327 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1327 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1327 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1327 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46696] VGAM1328 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1328 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1328 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM1328 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46697] VGAM1329 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1329 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1329 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1329 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46698] VGAM1329 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1329 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1329 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1329 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46699] VGAM1329 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1329 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1329 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1329 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46700] VGAM1329 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1329 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1329 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1329 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46701] It is appreciated that a function of VGR3385 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3385 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 29. Specific functions, and accordingly utilities, of VGR3385 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3385 gene: VGAM1325 host target protein, VGAM1326 host target protein, VGAM1327 host target protein, VGAM1328 host target protein, VGAM1329 host target protein, VGAM1329 host target protein, VGAM1329 host target protein and VGAM1329 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respec-

tively. The function of these host target genes is elaborated hereinabove with reference to VGAM1325, VGAM1326, VGAM1327, VGAM1328, VGAM1329, VGAM1329, VGAM1329 and VGAM1329

[46702] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3386(VGR3386) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46703] VGR3386 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3386 gene was detected is described hereinabove with reference to Figs. 6-15.

[46704] VGR3386 gene encodes VGR3386 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46705] VGR3386 precursor RNA folds spatially, forming VGR3386 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3386 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3386 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46706] VGR3386 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1329 precursor RNA, VGAM1329 precursor RNA, VGAM1330 precursor RNA, VGAM1331 precursor RNA, VGAM1331 precursor RNA, VGAM1331 precursor RNA, VGAM1331 precursor RNA and VGAM1331 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46707] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1329 RNA, VGAM1329 RNA, VGAM1330 RNA, VGAM1331 RNA, VGAM1331 RNA, VGAM1331 RNA, VGAM1331 RNA and VGAM1331 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46708] VGAM1329 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1329 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1329 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1329 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46709] VGAM1329 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1329 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1329 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1329 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46710] VGAM1330 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1330 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1330 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1330 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46711] VGAM1331 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1331 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1331 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1331 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46712] VGAM1331 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1331 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1331 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1331 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46713] VGAM1331 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1331 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1331 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1331 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46714] VGAM1331 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1331 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1331 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1331 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[46715] VGAM1331 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1331 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1331 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1331 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46716] It is appreciated that a function of VGR3386 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3386 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 29. Specific functions, and accordingly utilities, of VGR3386 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of

VGR3386 gene: VGAM1329 host target protein, VGAM1329 host target protein, VGAM1330 host target protein, VGAM1331 host target protein, VGAM1331 host target protein, VGAM1331 host target protein, VGAM1331 host target protein and VGAM1331 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1329, VGAM1329, VGAM1330, VGAM1331, VGAM1331, VGAM1331, VGAM1331 and VGAM1331

[46717] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3387(VGR3387) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46718] VGR3387 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3387 gene was detected is described hereinabove with reference to Figs.

6-15.

[46719] VGR3387 gene encodes VGR3387 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46720] VGR3387 precursor RNA folds spatially, forming VGR3387 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3387 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3387 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46721] VGR3387 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1331 precursor RNA, VGAM1332 precursor RNA, VGAM1333 precursor RNA, VGAM1334 precursor RNA, VGAM1335 precursor RNA and VGAM1336 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-

CURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46722] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1331 RNA, VGAM1332 RNA, VGAM1333 RNA, VGAM1334 RNA, VGAM1335 RNA and VGAM1336 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46723] VGAM1331 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1331 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1331 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1331 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46724] VGAM1332 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1332 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1332 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1332 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46725] VGAM1333 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1333 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1333 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1333 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46726] VGAM1334 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1334 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1334 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1334 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46727] VGAM1335 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1335 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1335 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1335 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46728] VGAM1336 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1336 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1336 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1336 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46729] It is appreciated that a function of VGR3387 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3387 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 29. Specific functions, and accordingly utilities, of VGR3387 gene, herein designated

VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3387 gene: VGAM1331 host target protein, VGAM1332 host target protein, VGAM1333 host target protein, VGAM1334 host target protein, VGAM1335 host target protein and VGAM1336 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1331, VGAM1332, VGAM1333, VGAM1334, VGAM1335 and VGAM1336

[46730] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3388(VGR3388) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46731] VGR3388 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3388 gene was

detected is described hereinabove with reference to Figs. 6-15.

[46732] VGR3388 gene encodes VGR3388 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46733] VGR3388 precursor RNA folds spatially, forming VGR3388 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3388 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3388 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46734] VGR3388 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1337 precursor RNA, VGAM1338 precursor RNA, VGAM1339 precursor RNA, VGAM1340 precursor RNA, VGAM1341 precursor RNA, VGAM1342 precursor RNA and VGAM1343 precursor RNA, herein

schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46735] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1337 RNA, VGAM1338 RNA, VGAM1339 RNA, VGAM1340 RNA, VGAM1341 RNA, VGAM1342 RNA and VGAM1343 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46736] VGAM1337 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1337 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1337 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1337 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46737] VGAM1338 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1338 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1338 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1338 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46738] VGAM1339 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1339 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1339 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1339 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46739] VGAM1340 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1340 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1340 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1340 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46740] VGAM1341 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1341 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1341 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1341 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46741] VGAM1342 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1342 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1342 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1342 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46742] VGAM1343 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1343 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1343 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1343 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46743] It is appreciated that a function of VGR3388 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3388 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3388 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3388 gene: VGAM1337 host target protein, VGAM1338 host target protein, VGAM1339 host target protein, VGAM1340 host target protein, VGAM1341 host target protein, VGAM1342 host target protein and VGAM1343 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respec-

tively. The function of these host target genes is elaborated hereinabove with reference to VGAM1337, VGAM1338, VGAM1339, VGAM1340, VGAM1341, VGAM1342 and VGAM1343

[46744] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3389(VGR3389) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46745] VGR3389 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3389 gene was detected is described hereinabove with reference to Figs. 6-15.

[46746] VGR3389 gene encodes VGR3389 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46747] VGR3389 precursor RNA folds spatially, forming VGR3389 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3389 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3389 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46748] VGR3389 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1344 precursor RNA, VGAM1345 precursor RNA, VGAM1346 precursor RNA, VGAM1347 precursor RNA, VGAM1348 precursor RNA, VGAM1349 precursor RNA, VGAM1350 precursor RNA and VGAM1351 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46749] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1344 RNA, VGAM1345 RNA, VGAM1346 RNA, VGAM1347 RNA, VGAM1348 RNA, VGAM1349 RNA, VGAM1350 RNA and VGAM1351 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46750] VGAM1344 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1344 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1344 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1344 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46751] VGAM1345 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1345 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1345 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1345 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46752] VGAM1346 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1346 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1346 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1346 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46753] VGAM1347 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1347 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1347 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1347 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46754] VGAM1348 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1348 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1348 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1348 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46755] VGAM1349 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1349 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1349 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1349 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46756] VGAM1350 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1350 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1350 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1350 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[46757] VGAM1351 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1351 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1351 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1351 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46758] It is appreciated that a function of VGR3389 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3389 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3389 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3389 gene:

VGAM1344 host target protein, VGAM1345 host target protein, VGAM1346 host target protein, VGAM1347 host target protein, VGAM1348 host target protein, VGAM1349 host target protein, VGAM1350 host target protein and VGAM1351 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1344, VGAM1345, VGAM1346, VGAM1347, VGAM1348, VGAM1349, VGAM1350 and VGAM1351

[46759] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3390(VGR3390) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46760] VGR3390 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3390 gene was detected is described hereinabove with reference to Figs.

6-15.

[46761] VGR3390 gene encodes VGR3390 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46762] VGR3390 precursor RNA folds spatially, forming VGR3390 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3390 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3390 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46763] VGR3390 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1352 precursor RNA, VGAM1353 precursor RNA, VGAM1354 precursor RNA, VGAM1355 precursor RNA, VGAM1356 precursor RNA and VGAM1357 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-

CURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46764] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1352 RNA, VGAM1353 RNA, VGAM1354 RNA, VGAM1355 RNA, VGAM1356 RNA and VGAM1357 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46765] VGAM1352 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1352 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1352 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1352 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46766] VGAM1353 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1353 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1353 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1353 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46767] VGAM1354 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1354 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1354 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1354 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46768] VGAM1355 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1355 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1355 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1355 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46769] VGAM1356 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1356 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1356 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1356 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46770] VGAM1357 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1357 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1357 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1357 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46771] It is appreciated that a function of VGR3390 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3390 gene include diagnosis, prevention and treatment of viral infection by Alcelaphine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3390 gene, herein designated VGR

GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3390 gene: VGAM1352 host target protein, VGAM1353 host target protein, VGAM1354 host target protein, VGAM1355 host target protein, VGAM1356 host target protein and VGAM1357 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1352, VGAM1353, VGAM1354, VGAM1355, VGAM1356 and VGAM1357

[46772] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3391(VGR3391) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46773] VGR3391 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3391 gene was

detected is described hereinabove with reference to Figs. 6-15.

[46774] VGR3391 gene encodes VGR3391 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46775] VGR3391 precursor RNA folds spatially, forming VGR3391 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3391 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3391 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46776] VGR3391 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1358 precursor RNA, VGAM1359 precursor RNA, VGAM1360 precursor RNA, VGAM1361 precursor RNA, VGAM1362 precursor RNA, VGAM1363 precursor RNA, VGAM1364 precursor RNA and VGAM1365

precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46777] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1358 RNA, VGAM1359 RNA, VGAM1360 RNA, VGAM1361 RNA, VGAM1362 RNA, VGAM1363 RNA, VGAM1364 RNA and VGAM1365 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46778] VGAM1358 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1358 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1358 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1358 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46779] VGAM1359 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1359 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1359 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1359 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46780] VGAM1360 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1360 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1360 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1360 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46781] VGAM1361 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1361 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1361 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1361 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46782] VGAM1362 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1362 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1362 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1362 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46783] VGAM1363 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1363 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1363 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1363 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46784] VGAM1364 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1364 host

target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1364 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1364 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46785] VGAM1365 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1365 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1365 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1365 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46786] It is appreciated that a function of VGR3391 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3391 gene include diagnosis, prevention and treatment of viral infection by Marburg virus. Specific functions, and accordingly utilities, of VGR3391 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3391 gene: VGAM1358 host target protein, VGAM1359 host target protein, VGAM1360 host target protein, VGAM1361 host target protein, VGAM1362 host target protein, VGAM1363 host target protein, VGAM1364 host target protein and VGAM1365 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1358, VGAM1359, VGAM1360, VGAM1361, VGAM1362, VGAM1363, VGAM1364 and VGAM1365

[46787] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3392(VGR3392) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46788] VGR3392 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3392 gene was detected is described hereinabove with reference to Figs. 6-15.

[46789] VGR3392 gene encodes VGR3392 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46790] VGR3392 precursor RNA folds spatially, forming VGR3392 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3392 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3392 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46791] VGR3392 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1366 precursor RNA, VGAM1367 precursor RNA and VGAM1368 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46792] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1366 RNA, VGAM1367 RNA and VGAM1368 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46793] VGAM1366 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1366 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1366 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1366 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46794] VGAM1367 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1367 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1367 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1367 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46795] VGAM1368 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1368 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1368 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1368 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46796] It is appreciated that a function of VGR3392 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3392 gene include diagnosis, prevention and treatment of viral infection by Marburg virus. Specific functions, and accordingly utilities, of VGR3392 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3392 gene: VGAM1366 host target protein, VGAM1367 host target protein and VGAM1368 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1366, VGAM1367 and

VGAM1368

[46797] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3393(VGR3393) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46798] VGR3393 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3393 gene was detected is described hereinabove with reference to Figs. 6-15.

[46799] VGR3393 gene encodes VGR3393 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46800] VGR3393 precursor RNA folds spatially, forming VGR3393 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3393 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3393 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46801] VGR3393 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1369 precursor RNA, VGAM1370 precursor RNA, VGAM1371 precursor RNA, VGAM1372 precursor RNA, VGAM1373 precursor RNA, VGAM1374 precursor RNA, VGAM1375 precursor RNA and VGAM1376 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46802] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1369 RNA, VGAM1370 RNA, VGAM1371 RNA, VGAM1372 RNA,

VGAM1373 RNA, VGAM1374 RNA, VGAM1375 RNA and VGAM1376 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46803] VGAM1369 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1369 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1369 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1369 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46804] VGAM1370 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1370 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1370 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1370 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46805] VGAM1371 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1371 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1371 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1371 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46806] VGAM1372 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1372 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1372 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1372 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46807] VGAM1373 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1373 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1373 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1373 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46808] VGAM1374 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1374 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1374 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1374 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46809] VGAM1375 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1375 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1375 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1375 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46810] VGAM1376 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1376 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1376 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1376 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46811] It is appreciated that a function of VGR3393 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3393 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3393 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3393 gene: VGAM1369 host target protein, VGAM1370 host target protein, VGAM1371 host target protein, VGAM1372 host target protein, VGAM1373 host target protein, VGAM1374

host target protein, VGAM1375 host target protein and VGAM1376 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1369, VGAM1370, VGAM1371, VGAM1372, VGAM1373, VGAM1374, VGAM1375 and VGAM1376

[46812] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3394(VGR3394) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46813] VGR3394 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3394 gene was detected is described hereinabove with reference to Figs. 6-15.

[46814] VGR3394 gene encodes VGR3394 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[46815] VGR3394 precursor RNA folds spatially, forming VGR3394 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3394 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3394 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46816] VGR3394 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1377 precursor RNA, VGAM1378 precursor RNA, VGAM1379 precursor RNA and VGAM1380 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46817] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1377 RNA, VGAM1378 RNA, VGAM1379 RNA and VGAM1380 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46818] VGAM1377 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1377 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1377 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1377 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46819] VGAM1378 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1378 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1378 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1378 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46820] VGAM1379 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1379 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1379 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1379 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46821] VGAM1380 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1380 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1380 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1380 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46822] It is appreciated that a function of VGR3394 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3394 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3394 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3394 gene: VGAM1377 host target protein, VGAM1378 host target protein, VGAM1379 host target protein and VGAM1380 host target protein, herein schematically represented by

VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1377, VGAM1378, VGAM1379 and VGAM1380

[46823] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3395(VGR3395) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46824] VGR3395 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3395 gene was detected is described hereinabove with reference to Figs. 6-15.

[46825] VGR3395 gene encodes VGR3395 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46826] VGR3395 precursor RNA folds spatially, forming VGR3395 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3395 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3395 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46827] VGR3395 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1381 precursor RNA, VGAM1382 precursor RNA, VGAM1383 precursor RNA, VGAM1384 precursor RNA, VGAM1385 precursor RNA, VGAM1386 precursor RNA, VGAM1387 precursor RNA and VGAM1388 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46828] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1381 RNA, VGAM1382 RNA, VGAM1383 RNA, VGAM1384 RNA, VGAM1385 RNA, VGAM1386 RNA, VGAM1387 RNA and VGAM1388 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46829] VGAM1381 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1381 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1381 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1381 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46830] VGAM1382 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1382 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1382 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1382 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46831] VGAM1383 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1383 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1383 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1383 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46832] VGAM1384 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1384 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1384 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1384 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46833] VGAM1385 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1385 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1385 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1385 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46834] VGAM1386 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1386 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1386 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1386 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46835] VGAM1387 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1387 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1387 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1387 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[46836] VGAM1388 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1388 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1388 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1388 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46837] It is appreciated that a function of VGR3395 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3395 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3395 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3395 gene:

VGAM1381 host target protein, VGAM1382 host target protein, VGAM1383 host target protein, VGAM1384 host target protein, VGAM1385 host target protein, VGAM1386 host target protein, VGAM1387 host target protein and VGAM1388 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1381, VGAM1382, VGAM1383, VGAM1384, VGAM1385, VGAM1386, VGAM1387 and VGAM1388

[46838] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3396(VGR3396) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46839] VGR3396 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3396 gene was detected is described hereinabove with reference to Figs.

6-15.

[46840] VGR3396 gene encodes VGR3396 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46841] VGR3396 precursor RNA folds spatially, forming VGR3396 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3396 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3396 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46842] VGR3396 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1389 precursor RNA, VGAM1390 precursor RNA and VGAM1391 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA

segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46843] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1389 RNA, VGAM1390 RNA and VGAM1391 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46844] VGAM1389 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1389 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1389 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1389 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46845] VGAM1390 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1390 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1390 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1390 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46846] VGAM1391 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1391 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1391 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1391 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46847] It is appreciated that a function of VGR3396 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3396 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3396 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3396 gene: VGAM1389 host target protein, VGAM1390 host target protein and VGAM1391 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1389, VGAM1390 and VGAM1391

[46848] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3397(VGR3397) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[46849] VGR3397 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3397 gene was detected is described hereinabove with reference to Figs. 6-15.

[46850] VGR3397 gene encodes VGR3397 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46851] VGR3397 precursor RNA folds spatially, forming VGR3397 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3397 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3397 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46852] VGR3397 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM1392 precursor RNA, VGAM1393 precursor RNA, VGAM1394 precursor RNA, VGAM1395 precursor RNA, VGAM1396 precursor RNA, VGAM1397 precursor RNA, VGAM1398 precursor RNA and VGAM1399 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46853] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1392 RNA, VGAM1393 RNA, VGAM1394 RNA, VGAM1395 RNA, VGAM1396 RNA, VGAM1397 RNA, VGAM1398 RNA and VGAM1399 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46854] VGAM1392 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1392 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1392 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1392 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46855] VGAM1393 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1393 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1393 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1393 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46856] VGAM1394 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1394 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1394 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1394 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46857] VGAM1395 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1395 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1395 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1395 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46858] VGAM1396 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1396 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1396 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1396 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46859] VGAM1397 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1397 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1397 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1397 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[46860] VGAM1398 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1398 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1398 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1398 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46861] VGAM1399 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1399 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1399 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1399 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46862] It is appreciated that a function of VGR3397 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3397 gene include diagnosis, prevention and treatment of viral infection by Primate T-lymphotropic virus 3. Specific functions, and accordingly utilities, of VGR3397 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3397 gene: VGAM1392 host target protein, VGAM1393 host target protein, VGAM1394 host target protein, VGAM1395 host target protein, VGAM1396 host target protein, VGAM1397 host target protein, VGAM1398 host target protein and VGAM1399 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1392, VGAM1393, VGAM1394, VGAM1395, VGAM1396, VGAM1397, VGAM1398 and VGAM1399

[46863] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3398(VGR3398) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46864] VGR3398 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3398 gene was detected is described hereinabove with reference to Figs. 6-15.

[46865] VGR3398 gene encodes VGR3398 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46866] VGR3398 precursor RNA folds spatially, forming VGR3398 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3398 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3398 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46867] VGR3398 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1400 precursor RNA and VGAM1401 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46868] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1400 RNA and VGAM1401 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46869] VGAM1400 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1400 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1400 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1400 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46870] VGAM1401 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1401 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1401 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1401 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46871] It is appreciated that a function of VGR3398 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3398 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3398 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3398 gene: VGAM1400 host target protein and VGAM1401 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1400 and VGAM1401

[46872] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3399(VGR3399) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46873] VGR3399 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3399 gene was detected is described hereinabove with reference to Figs. 6-15.

[46874] VGR3399 gene encodes VGR3399 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46875] VGR3399 precursor RNA folds spatially, forming VGR3399 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3399 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3399 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46876] VGR3399 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1402 precursor RNA, VGAM1403 precursor RNA, VGAM1404 precursor RNA, VGAM1405 pre-

cursor RNA, VGAM1406 precursor RNA, VGAM1407 precursor RNA, VGAM1408 precursor RNA and VGAM1409 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46877] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1402 RNA, VGAM1403 RNA, VGAM1404 RNA, VGAM1405 RNA, VGAM1406 RNA, VGAM1407 RNA, VGAM1408 RNA and VGAM1409 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46878] VGAM1402 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1402 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1402 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1402 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46879] VGAM1403 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1403 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1403 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1403 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46880] VGAM1404 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1404 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1404 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1404 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46881] VGAM1405 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1405 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1405 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1405 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46882] VGAM1406 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1406 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1406 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1406 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46883] VGAM1407 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1407 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1407 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1407 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46884] VGAM1408 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1408 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1408 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1408 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46885] VGAM1409 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1409 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1409 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1409 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46886] It is appreciated that a function of VGR3399 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3399 gene include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3399 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3399 gene: VGAM1402 host target protein, VGAM1403 host target protein, VGAM1404 host target protein, VGAM1405 host target protein, VGAM1406 host target protein, VGAM1407 host target protein, VGAM1408 host target protein and VGAM1409 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1402, VGAM1403, VGAM1404, VGAM1405, VGAM1406, VGAM1407, VGAM1408 and VGAM1409

[46887] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3400(VGR3400) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46888] VGR3400 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3400 gene was detected is described hereinabove with reference to Figs. 6-15.

[46889] VGR3400 gene encodes VGR3400 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46890] VGR3400 precursor RNA folds spatially, forming VGR3400 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3400 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3400 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46891] VGR3400 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1411 precursor RNA, VGAM1412 precursor RNA, VGAM1413 precursor RNA, VGAM1414 precursor RNA, VGAM1415 precursor RNA, VGAM1415 precursor RNA, VGAM1415 precursor RNA and VGAM1416 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46892] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1411 RNA, VGAM1412 RNA, VGAM1413 RNA, VGAM1414 RNA, VGAM1415 RNA, VGAM1415 RNA, VGAM1415 RNA and VGAM1416 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46893] VGAM1411 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1411 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1411 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1411 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46894] VGAM1412 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1412 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1412 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1412 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[46895] VGAM1413 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1413 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1413 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1413 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46896] VGAM1414 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1414 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1414 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1414 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46897] VGAM1415 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1415 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1415 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1415 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46898] VGAM1415 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1415 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1415 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM1415 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46899] VGAM1415 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1415 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1415 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1415 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46900] VGAM1416 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1416 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1416 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM1416 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46901] It is appreciated that a function of VGR3400 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3400 gene include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3400 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3400 gene: VGAM1411 host target protein, VGAM1412 host target protein, VGAM1413 host target protein, VGAM1414 host target protein, VGAM1415 host target protein, VGAM1415 host target protein, VGAM1415 host target protein and VGAM1416 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1411, VGAM1412,

VGAM1413, VGAM1414, VGAM1415, VGAM1415, VGAM1415 and VGAM1416

[46902] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3401(VGR3401) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46903] VGR3401 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3401 gene was detected is described hereinabove with reference to Figs. 6-15.

[46904] VGR3401 gene encodes VGR3401 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46905] VGR3401 precursor RNA folds spatially, forming VGR3401 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3401 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3401 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46906] VGR3401 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1417 precursor RNA and VGAM1418 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46907] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1417 RNA and VGAM1418 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46908] VGAM1417 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1417 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1417 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1417 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46909] VGAM1418 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1418 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1418 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1418 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46910] It is appreciated that a function of VGR3401 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3401 gene include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3401 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3401 gene: VGAM1417 host target protein and VGAM1418 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1417 and VGAM1418

[46911] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3402(VGR3402) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[46912] VGR3402 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3402 gene was detected is described hereinabove with reference to Figs. 6-15.

[46913] VGR3402 gene encodes VGR3402 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46914] VGR3402 precursor RNA folds spatially, forming VGR3402 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3402 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3402 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46915] VGR3402 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM1419 precursor RNA, VGAM1420 precursor RNA, VGAM1421 precursor RNA, VGAM1422 precursor RNA, VGAM1423 precursor RNA, VGAM1424 precursor RNA, VGAM1425 precursor RNA and VGAM1426 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46916] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1419 RNA, VGAM1420 RNA, VGAM1421 RNA, VGAM1422 RNA, VGAM1423 RNA, VGAM1424 RNA, VGAM1425 RNA and VGAM1426 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46917] VGAM1419 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1419 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1419 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1419 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46918] VGAM1420 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1420 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1420 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1420 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46919] VGAM1421 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1421 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1421 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1421 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46920] VGAM1422 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1422 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1422 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1422 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46921] VGAM1423 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1423 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1423 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1423 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46922] VGAM1424 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1424 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1424 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1424 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[46923] VGAM1425 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1425 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1425 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1425 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46924] VGAM1426 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1426 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1426 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1426 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[46925] It is appreciated that a function of VGR3402 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3402 gene include diagnosis, prevention and treatment of viral infection by Murid herpesvirus 4. Specific functions, and accordingly utilities, of VGR3402 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3402 gene: VGAM1419 host target protein, VGAM1420 host target protein, VGAM1421 host target protein, VGAM1422 host target protein, VGAM1423 host target protein, VGAM1424 host target protein, VGAM1425 host target protein and VGAM1426 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1419, VGAM1420, VGAM1421, VGAM1422, VGAM1423, VGAM1424, VGAM1425 and VGAM1426

[46926] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3403(VGR3403) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46927] VGR3403 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3403 gene was detected is described hereinabove with reference to Figs. 6-15.

[46928] VGR3403 gene encodes VGR3403 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46929] VGR3403 precursor RNA folds spatially, forming VGR3403 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3403 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3403 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46930] VGR3403 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1428 precursor RNA, VGAM1429 precursor RNA, VGAM1430 precursor RNA and VGAM1431 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46931] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1428 RNA, VGAM1429 RNA, VGAM1430 RNA and VGAM1431 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46932] VGAM1428 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1428 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1428 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1428 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46933] VGAM1429 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1429 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1429 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1429 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[46934] VGAM1430 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1430 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1430 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1430 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46935] VGAM1431 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1431 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1431 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1431 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46936] It is appreciated that a function of VGR3403 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3403 gene include diagnosis, prevention and treatment of viral infection by Macaca mulatta rhadinovirus. Specific functions, and accordingly utilities, of VGR3403 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3403 gene: VGAM1428 host target protein, VGAM1429 host target protein, VGAM1430 host target protein and VGAM1431 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1428, VGAM1429, VGAM1430 and VGAM1431

[46937] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3404(VGR3404) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46938] VGR3404 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3404 gene was detected is described hereinabove with reference to Figs. 6-15.

[46939] VGR3404 gene encodes VGR3404 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46940] VGR3404 precursor RNA folds spatially, forming VGR3404 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3404 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3404 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[46941] VGR3404 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1433 precursor RNA and VGAM1434 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46942] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1433 RNA and VGAM1434 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46943] VGAM1433 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1433 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1433 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1433 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46944] VGAM1434 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1434 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1434 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1434 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46945] It is appreciated that a function of VGR3404 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3404 gene include diagnosis, prevention and treatment of viral infection by

Bhendi yellow vein mosaic virus satellite DNA beta. Specific functions, and accordingly utilities, of VGR3404 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3404 gene: VGAM1433 host target protein and VGAM1434 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1433 and VGAM1434

[46946] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3405(VGR3405) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46947] VGR3405 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3405 gene was detected is described hereinabove with reference to Figs.

6-15.

[46948] VGR3405 gene encodes VGR3405 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46949] VGR3405 precursor RNA folds spatially, forming VGR3405 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3405 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3405 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46950] VGR3405 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1435 precursor RNA, VGAM1436 precursor RNA, VGAM1437 precursor RNA, VGAM1438 precursor RNA, VGAM1439 precursor RNA, VGAM1440 precursor RNA and VGAM1441 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2

PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46951] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1435 RNA, VGAM1436 RNA, VGAM1437 RNA, VGAM1438 RNA, VGAM1439 RNA, VGAM1440 RNA and VGAM1441 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46952] VGAM1435 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1435 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1435 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1435 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46953] VGAM1436 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1436 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1436 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1436 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46954] VGAM1437 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1437 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1437 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM1437 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46955] VGAM1438 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1438 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1438 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1438 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46956] VGAM1439 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1439 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1439 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1439 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46957] VGAM1440 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1440 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1440 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1440 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46958] VGAM1441 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1441 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1441 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1441 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[46959] It is appreciated that a function of VGR3405 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3405 gene include diagnosis, prevention and treatment of viral infection by Murid herpesvirus 4. Specific functions, and accordingly utilities, of VGR3405 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3405 gene: VGAM1435 host target protein, VGAM1436 host target protein, VGAM1437 host target protein, VGAM1438 host target protein, VGAM1439 host target protein, VGAM1440 host target protein and VGAM1441 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elabo-

rated hereinabove with reference to VGAM1435, VGAM1436, VGAM1437, VGAM1438, VGAM1439, VGAM1440 and VGAM1441

[46960] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3406(VGR3406) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46961] VGR3406 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3406 gene was detected is described hereinabove with reference to Figs. 6-15.

[46962] VGR3406 gene encodes VGR3406 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46963] VGR3406 precursor RNA folds spatially, forming VGR3406 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3406 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3406 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46964] VGR3406 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1442 precursor RNA, VGAM1443 precursor RNA, VGAM1444 precursor RNA, VGAM1445 precursor RNA, VGAM1446 precursor RNA and VGAM1447 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46965] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1442 RNA, VGAM1443 RNA, VGAM1444 RNA, VGAM1445 RNA,

VGAM1446 RNA and VGAM1447 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46966] VGAM1442 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1442 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1442 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1442 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46967] VGAM1443 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1443 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1443 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1443 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46968] VGAM1444 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1444 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1444 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1444 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46969] VGAM1445 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1445 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1445 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1445 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46970] VGAM1446 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1446 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1446 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1446 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46971] VGAM1447 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1447 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1447 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1447 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[46972] It is appreciated that a function of VGR3406 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3406 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3406 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3406 gene: VGAM1442 host target protein, VGAM1443 host target protein, VGAM1444 host target protein, VGAM1445 host target protein, VGAM1446 host target protein and VGAM1447 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through

VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1442, VGAM1443, VGAM1444, VGAM1445, VGAM1446 and VGAM1447

[46973] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3407(VGR3407) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46974] VGR3407 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3407 gene was detected is described hereinabove with reference to Figs. 6-15.

[46975] VGR3407 gene encodes VGR3407 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46976] VGR3407 precursor RNA folds spatially, forming VGR3407 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3407 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3407 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46977] VGR3407 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1448 precursor RNA, VGAM1449 precursor RNA, VGAM1450 precursor RNA, VGAM1451 precursor RNA and VGAM1452 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46978] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1448 RNA, VGAM1449 RNA, VGAM1450 RNA, VGAM1451 RNA

and VGAM1452 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46979] VGAM1448 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1448 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1448 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1448 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46980] VGAM1449 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1449 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1449 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1449 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46981] VGAM1450 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1450 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1450 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1450 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46982] VGAM1451 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1451 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1451 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1451 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46983] VGAM1452 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1452 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1452 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1452 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46984] It is appreciated that a function of VGR3407 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3407 gene include diagnosis, prevention and treatment of viral infection by

Human enterovirus A. Specific functions, and accordingly utilities, of VGR3407 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3407 gene: VGAM1448 host target protein, VGAM1449 host target protein, VGAM1450 host target protein, VGAM1451 host target protein and VGAM1452 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1448, VGAM1449, VGAM1450, VGAM1451 and VGAM1452

[46985] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3408(VGR3408) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46986] VGR3408 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3408 gene was detected is described hereinabove with reference to Figs. 6-15.

[46987] VGR3408 gene encodes VGR3408 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[46988] VGR3408 precursor RNA folds spatially, forming VGR3408 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3408 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3408 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[46989] VGR3408 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1453 precursor RNA, VGAM1454 precursor RNA, VGAM1455 precursor RNA, VGAM1456 precursor RNA and VGAM1457 precursor RNA, herein

schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[46990] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1453 RNA, VGAM1454 RNA, VGAM1455 RNA, VGAM1456 RNA and VGAM1457 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[46991] VGAM1453 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1453 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1453 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1453 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[46992] VGAM1454 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1454 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1454 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1454 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[46993] VGAM1455 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1455 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1455 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1455 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[46994] VGAM1456 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1456 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1456 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1456 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[46995] VGAM1457 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1457 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1457 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1457 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[46996] It is appreciated that a function of VGR3408 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3408 gene include diagnosis, prevention and treatment of viral infection by Feline immunodeficiency virus. Specific functions, and accordingly utilities, of VGR3408 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3408 gene: VGAM1453 host target protein, VGAM1454 host target protein, VGAM1455 host target protein, VGAM1456 host target protein and VGAM1457 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1453, VGAM1454, VGAM1455, VGAM1456 and VGAM1457

[46997] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3409(VGR3409) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[46998] VGR3409 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3409 gene was detected is described hereinabove with reference to Figs. 6-15.

[46999] VGR3409 gene encodes VGR3409 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47000] VGR3409 precursor RNA folds spatially, forming VGR3409 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3409 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3409 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47001] VGR3409 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1458 precursor RNA, VGAM1459 precursor RNA, VGAM1460 precursor RNA, VGAM1461 precursor RNA and VGAM1462 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47002] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1458 RNA, VGAM1459 RNA, VGAM1460 RNA, VGAM1461 RNA and VGAM1462 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47003] VGAM1458 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1458 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1458 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1458 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47004] VGAM1459 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1459 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1459 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1459 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[47005] VGAM1460 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1460 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1460 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1460 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47006] VGAM1461 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1461 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1461 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1461 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47007] VGAM1462 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1462 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1462 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1462 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47008] It is appreciated that a function of VGR3409 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3409 gene include diagnosis, prevention and treatment of viral infection by Tobacco mosaic virus. Specific functions, and accordingly utilities, of VGR3409 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3409 gene: VGAM1458 host target protein, VGAM1459 host target protein, VGAM1460 host target protein, VGAM1461 host target protein and VGAM1462 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1458, VGAM1459, VGAM1460, VGAM1461 and VGAM1462

[47009] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3410(VGR3410) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47010] VGR3410 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3410 gene was detected is described hereinabove with reference to Figs. 6-15.

[47011] VGR3410 gene encodes VGR3410 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47012] VGR3410 precursor RNA folds spatially, forming VGR3410 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3410 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3410 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47013] VGR3410 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1463 precursor RNA, VGAM1464 precursor RNA, VGAM1465 precursor RNA and VGAM1466 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig.

8.

[47014] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1463 RNA, VGAM1464 RNA, VGAM1465 RNA and VGAM1466 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47015] VGAM1463 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1463 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1463 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1463 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47016] VGAM1464 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1464 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1464 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1464 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47017] VGAM1465 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1465 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1465 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1465 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47018] VGAM1466 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1466 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1466 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1466 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47019] It is appreciated that a function of VGR3410 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3410 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3410 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3410 gene: VGAM1463 host target protein, VGAM1464 host target protein, VGAM1465 host target protein and VGAM1466

host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1463, VGAM1464, VGAM1465 and VGAM1466

[47020] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3411(VGR3411) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47021] VGR3411 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3411 gene was detected is described hereinabove with reference to Figs. 6-15.

[47022] VGR3411 gene encodes VGR3411 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47023] VGR3411 precursor RNA folds spatially, forming VGR3411 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3411 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3411 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47024] VGR3411 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1467 precursor RNA, VGAM1468 precursor RNA, VGAM1469 precursor RNA, VGAM1470 precursor RNA, VGAM1471 precursor RNA, VGAM1472 precursor RNA and VGAM1473 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47025] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1467 RNA, VGAM1468 RNA, VGAM1469 RNA, VGAM1470 RNA, VGAM1471 RNA, VGAM1472 RNA and VGAM1473 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47026] VGAM1467 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1467 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1467 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1467 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47027] VGAM1468 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1468 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1468 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1468 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47028] VGAM1469 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1469 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1469 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1469 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47029] VGAM1470 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1470 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1470 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1470 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47030] VGAM1471 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1471 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1471 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1471 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47031] VGAM1472 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1472 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1472 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1472 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47032] VGAM1473 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1473 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1473 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1473 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47033] It is appreciated that a function of VGR3411 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3411 gene include diagnosis, prevention and treatment of viral infection by Woolly monkey sarcoma virus. Specific functions, and accordingly utilities, of VGR3411 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3411 gene: VGAM1467 host target protein, VGAM1468 host target protein, VGAM1469 host target protein, VGAM1470 host target protein, VGAM1471 host target protein, VGAM1472 host target protein and VGAM1473 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1467, VGAM1468, VGAM1469, VGAM1470, VGAM1471, VGAM1472 and VGAM1473

[47034] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3412(VGR3412) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47035] VGR3412 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3412 gene was detected is described hereinabove with reference to Figs. 6-15.

[47036] VGR3412 gene encodes VGR3412 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47037] VGR3412 precursor RNA folds spatially, forming VGR3412 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3412 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3412 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[47038] VGR3412 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1474 precursor RNA, VGAM1475 precursor RNA, VGAM1476 precursor RNA, VGAM1477 precursor RNA, VGAM1478 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA and VGAM1479 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47039] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1474 RNA, VGAM1475 RNA, VGAM1476 RNA, VGAM1477 RNA, VGAM1478 RNA, VGAM1479 RNA, VGAM1479 RNA and VGAM1479 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47040] VGAM1474 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1474 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1474 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1474 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47041] VGAM1475 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1475 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1475 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1475 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47042] VGAM1476 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1476 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1476 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1476 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47043] VGAM1477 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1477 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1477 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM1477 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47044] VGAM1478 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1478 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1478 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1478 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47045] VGAM1479 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47046] VGAM1479 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47047] VGAM1479 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47048] It is appreciated that a function of VGR3412 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3412 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3412 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3412 gene: VGAM1474 host target protein, VGAM1475 host target protein, VGAM1476 host target protein, VGAM1477 host target protein, VGAM1478 host target protein, VGAM1479 host target protein, VGAM1479 host target protein and VGAM1479 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function

of these host target genes is elaborated hereinabove with reference to VGAM1474, VGAM1475, VGAM1476, VGAM1477, VGAM1478, VGAM1479, VGAM1479 and VGAM1479

[47049] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3413(VGR3413) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47050] VGR3413 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3413 gene was detected is described hereinabove with reference to Figs. 6-15.

[47051] VGR3413 gene encodes VGR3413 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47052] VGR3413 precursor RNA folds spatially, forming VGR3413 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3413 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3413 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47053] VGR3413 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA and VGAM1479 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47054] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA and VGAM1479 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47055] VGAM1479 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47056] VGAM1479 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47057] VGAM1479 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47058] VGAM1479 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47059] VGAM1479 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47060] VGAM1479 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47061] VGAM1479 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[47062] VGAM1479 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47063] It is appreciated that a function of VGR3413 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3413 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3413 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3413 gene:

VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein and VGAM1479 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1479, VGAM1479, VGAM1479, VGAM1479, VGAM1479, VGAM1479, VGAM1479 and VGAM1479

[47064] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3414(VGR3414) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47065] VGR3414 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3414 gene was detected is described hereinabove with reference to Figs.

6-15.

[47066] VGR3414 gene encodes VGR3414 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47067] VGR3414 precursor RNA folds spatially, forming VGR3414 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3414 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3414 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47068] VGR3414 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA, VGAM1479 precursor RNA and VGAM1479 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47069] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA, VGAM1479 RNA and VGAM1479 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47070] VGAM1479 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47071] VGAM1479 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47072] VGAM1479 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47073] VGAM1479 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47074] VGAM1479 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47075] VGAM1479 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47076] VGAM1479 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM7

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47077] VGAM1479 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47078] It is appreciated that a function of VGR3414 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3414 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3414 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3414 gene: VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein, VGAM1479 host target protein and VGAM1479 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1479, VGAM1479, VGAM1479, VGAM1479, VGAM1479, VGAM1479, VGAM1479 and VGAM1479

[47079] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3415(VGR3415) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47080] VGR3415 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3415 gene was detected is described hereinabove with reference to Figs. 6-15.

[47081] VGR3415 gene encodes VGR3415 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47082] VGR3415 precursor RNA folds spatially, forming VGR3415 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3415 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3415 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47083] VGR3415 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1479 precursor RNA, VGAM1480 precursor RNA and VGAM1481 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47084] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1479 RNA, VGAM1480 RNA and VGAM1481 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47085] VGAM1479 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1479 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1479 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1479 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47086] VGAM1480 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1480 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1480 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1480 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47087] VGAM1481 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1481 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1481 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1481 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47088] It is appreciated that a function of VGR3415 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3415 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3415 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3415 gene: VGAM1479 host target protein, VGAM1480 host target protein and VGAM1481 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1479, VGAM1480 and VGAM1481

[47089] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3416(VGR3416) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47090] VGR3416 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3416 gene was detected is described hereinabove with reference to Figs. 6-15.

[47091] VGR3416 gene encodes VGR3416 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47092] VGR3416 precursor RNA folds spatially, forming VGR3416 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3416 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3416 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47093] VGR3416 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1482 precursor RNA, VGAM1483 precursor RNA, VGAM1484 precursor RNA, VGAM1485 precursor RNA, VGAM1486 precursor RNA, VGAM1487 precursor RNA, VGAM1488 precursor RNA and VGAM1488 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47094] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1482 RNA, VGAM1483 RNA, VGAM1484 RNA, VGAM1485 RNA, VGAM1486 RNA, VGAM1487 RNA, VGAM1488 RNA and

VGAM1488 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47095] VGAM1482 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1482 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1482 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1482 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47096] VGAM1483 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1483 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1483 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1483 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47097] VGAM1484 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1484 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1484 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1484 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47098] VGAM1485 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1485 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1485 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1485 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47099] VGAM1486 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1486 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1486 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1486 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47100] VGAM1487 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1487 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1487 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1487 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47101] VGAM1488 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47102] VGAM1488 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host

target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47103] It is appreciated that a function of VGR3416 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3416 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3416 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3416 gene: VGAM1482 host target protein, VGAM1483 host target protein, VGAM1484 host target protein, VGAM1485 host target protein, VGAM1486 host target protein, VGAM1487 host target protein, VGAM1488 host target protein and

VGAM1488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1482, VGAM1483, VGAM1484, VGAM1485, VGAM1486, VGAM1487, VGAM1488 and VGAM1488

[47104] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3417(VGR3417) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47105] VGR3417 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3417 gene was detected is described hereinabove with reference to Figs. 6-15.

[47106] VGR3417 gene encodes VGR3417 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47107] VGR3417 precursor RNA folds spatially, forming VGR3417 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3417 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3417 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47108] VGR3417 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA and VGAM1488 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47109] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA and VGAM1488 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47110] VGAM1488 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[47111] VGAM1488 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47112] VGAM1488 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1488 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47113] VGAM1488 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47114] VGAM1488 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM1488 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47115] VGAM1488 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47116] VGAM1488 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47117] VGAM1488 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47118] It is appreciated that a function of VGR3417 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3417 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3417 gene, herein designated VGR GENE, correlate

with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3417 gene: VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein and VGAM1488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488 and VGAM1488

[47119] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3418(VGR3418) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47120] VGR3418 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3418 gene was detected is described hereinabove with reference to Figs. 6-15.

[47121] VGR3418 gene encodes VGR3418 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47122] VGR3418 precursor RNA folds spatially, forming VGR3418 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3418 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3418 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47123] VGR3418 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 pre-

cursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA and VGAM1488 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47124] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA and VGAM1488 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47125] VGAM1488 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47126] VGAM1488 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47127] VGAM1488 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47128] VGAM1488 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47129] VGAM1488 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47130] VGAM1488 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47131] VGAM1488 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47132] VGAM1488 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47133] It is appreciated that a function of VGR3418 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3418 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3418 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3418 gene: VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein and VGAM1488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488 and VGAM1488

[47134] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3419(VGR3419) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47135] VGR3419 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3419 gene was detected is described hereinabove with reference to Figs. 6-15.

[47136] VGR3419 gene encodes VGR3419 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47137] VGR3419 precursor RNA folds spatially, forming VGR3419 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3419 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3419 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47138] VGR3419 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA, VGAM1488 precursor RNA and VGAM1488 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47139] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA, VGAM1488 RNA and VGAM1488 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47140] VGAM1488 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47141] VGAM1488 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47142] VGAM1488 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47143] VGAM1488 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47144] VGAM1488 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47145] VGAM1488 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47146] VGAM1488 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47147] VGAM1488 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1488 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1488 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1488 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47148] It is appreciated that a function of VGR3419 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3419 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3419 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3419 gene: VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein, VGAM1488 host target protein and VGAM1488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through

VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488, VGAM1488 and VGAM1488

[47149] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3420(VGR3420) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47150] VGR3420 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3420 gene was detected is described hereinabove with reference to Figs. 6-15.

[47151] VGR3420 gene encodes VGR3420 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47152] VGR3420 precursor RNA folds spatially, forming VGR3420 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3420 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3420 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47153] VGR3420 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1489 precursor RNA and VGAM1490 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47154] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1489 RNA and VGAM1490 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47155] VGAM1489 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1489 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1489 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1489 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47156] VGAM1490 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1490 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1490 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1490 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47157] It is appreciated that a function of VGR3420 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3420 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3420 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3420 gene: VGAM1489 host target protein and VGAM1490 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1489 and VGAM1490

[47158] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3421(VGR3421) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47159] VGR3421 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3421 gene was detected is described hereinabove with reference to Figs. 6-15.

[47160] VGR3421 gene encodes VGR3421 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47161] VGR3421 precursor RNA folds spatially, forming VGR3421 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3421 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3421 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47162] VGR3421 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1491 precursor RNA, VGAM1492 precursor RNA, VGAM1493 precursor RNA, VGAM1494 precursor RNA, VGAM1495 precursor RNA, VGAM1496 precursor RNA, VGAM1497 precursor RNA and VGAM1498 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47163] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1491 RNA, VGAM1492 RNA, VGAM1493 RNA, VGAM1494 RNA, VGAM1495 RNA, VGAM1496 RNA, VGAM1497 RNA and VGAM1498 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs correspond-

ing to VGAM RNA of Fig. 8.

[47164] VGAM1491 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1491 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1491 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1491 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47165] VGAM1492 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1492 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1492 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1492 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47166] VGAM1493 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1493 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1493 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1493 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47167] VGAM1494 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1494 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1494 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM1494 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47168] VGAM1495 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1495 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1495 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1495 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47169] VGAM1496 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1496 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1496 host target RNA, herein

schematically represented by VGAM6 HOST TARGET RNA into VGAM1496 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47170] VGAM1497 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1497 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1497 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1497 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47171] VGAM1498 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1498 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1498 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1498 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47172] It is appreciated that a function of VGR3421 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3421 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3421 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3421 gene: VGAM1491 host target protein, VGAM1492 host target protein, VGAM1493 host target protein, VGAM1494 host target protein, VGAM1495 host target protein, VGAM1496 host target protein, VGAM1497 host target protein and VGAM1498 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with

reference to VGAM1491, VGAM1492, VGAM1493, VGAM1494, VGAM1495, VGAM1496, VGAM1497 and VGAM1498

[47173] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3422(VGR3422) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47174] VGR3422 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3422 gene was detected is described hereinabove with reference to Figs. 6-15.

[47175] VGR3422 gene encodes VGR3422 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47176] VGR3422 precursor RNA folds spatially, forming VGR3422 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3422 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3422 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47177] VGR3422 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1499 precursor RNA, VGAM1500 precursor RNA, VGAM1501 precursor RNA, VGAM1502 precursor RNA, VGAM1503 precursor RNA, VGAM1504 precursor RNA and VGAM1505 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47178] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1499

RNA, VGAM1500 RNA, VGAM1501 RNA, VGAM1502 RNA, VGAM1503 RNA, VGAM1504 RNA and VGAM1505 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47179] VGAM1499 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1499 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1499 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1499 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47180] VGAM1500 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1500 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1500 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1500 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47181] VGAM1501 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1501 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1501 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1501 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47182] VGAM1502 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1502 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1502 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1502 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47183] VGAM1503 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1503 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1503 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1503 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47184] VGAM1504 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1504 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1504 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1504 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47185] VGAM1505 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1505 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1505 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1505 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47186] It is appreciated that a function of VGR3422 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3422 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3422 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3422 gene: VGAM1499 host target protein, VGAM1500 host target protein, VGAM1501 host target protein, VGAM1502 host target protein, VGAM1503 host target protein, VGAM1504 host target protein and VGAM1505 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1499, VGAM1500, VGAM1501, VGAM1502, VGAM1503, VGAM1504 and VGAM1505

[47187] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3423(VGR3423) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47188] VGR3423 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3423 gene was detected is described hereinabove with reference to Figs. 6-15.

[47189] VGR3423 gene encodes VGR3423 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47190] VGR3423 precursor RNA folds spatially, forming VGR3423 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3423 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3423 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47191] VGR3423 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1506 precursor RNA, VGAM1507 precursor RNA, VGAM1508 precursor RNA, VGAM1509 precursor RNA, VGAM1510 precursor RNA, VGAM1511 precursor RNA, VGAM1512 precursor RNA and VGAM1513 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47192] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1506 RNA, VGAM1507 RNA, VGAM1508 RNA, VGAM1509 RNA, VGAM1510 RNA, VGAM1511 RNA, VGAM1512 RNA and VGAM1513 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47193] VGAM1506 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1506 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1506 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1506 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47194] VGAM1507 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1507 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1507 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1507 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[47195] VGAM1508 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1508 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1508 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1508 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47196] VGAM1509 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1509 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1509 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1509 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47197] VGAM1510 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1510 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1510 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1510 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47198] VGAM1511 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1511 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1511 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM1511 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47199] VGAM1512 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1512 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1512 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1512 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47200] VGAM1513 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1513 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1513 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM1513 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47201] It is appreciated that a function of VGR3423 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3423 gene include diagnosis, prevention and treatment of viral infection by Human echovirus 1. Specific functions, and accordingly utilities, of VGR3423 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3423 gene: VGAM1506 host target protein, VGAM1507 host target protein, VGAM1508 host target protein, VGAM1509 host target protein, VGAM1510 host target protein, VGAM1511 host target protein, VGAM1512 host target protein and VGAM1513 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1506, VGAM1507, VGAM1508,

VGAM1509, VGAM1510, VGAM1511, VGAM1512 and VGAM1513

[47202] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3424(VGR3424) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47203] VGR3424 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3424 gene was detected is described hereinabove with reference to Figs. 6-15.

[47204] VGR3424 gene encodes VGR3424 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47205] VGR3424 precursor RNA folds spatially, forming VGR3424 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3424 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3424 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47206] VGR3424 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1514 precursor RNA, VGAM1515 precursor RNA, VGAM1516 precursor RNA, VGAM1517 precursor RNA and VGAM1518 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47207] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1514 RNA, VGAM1515 RNA, VGAM1516 RNA, VGAM1517 RNA and VGAM1518 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA,

VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47208] VGAM1514 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1514 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1514 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1514 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47209] VGAM1515 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1515 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1515 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1515 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47210] VGAM1516 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1516 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1516 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1516 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47211] VGAM1517 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1517 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1517 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM1517 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47212] VGAM1518 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1518 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1518 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1518 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47213] It is appreciated that a function of VGR3424 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3424 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3424 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3424 gene: VGAM1514 host target protein, VGAM1515 host target protein, VGAM1516 host target protein, VGAM1517 host target protein and VGAM1518 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1514, VGAM1515, VGAM1516, VGAM1517 and VGAM1518

[47214] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3425(VGR3425) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47215] VGR3425 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3425 gene was detected is described hereinabove with reference to Figs.

6-15.

[47216] VGR3425 gene encodes VGR3425 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47217] VGR3425 precursor RNA folds spatially, forming VGR3425 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3425 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3425 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47218] VGR3425 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1519 precursor RNA, VGAM1520 precursor RNA, VGAM1521 precursor RNA, VGAM1522 precursor RNA, VGAM1523 precursor RNA and VGAM1524 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-

CURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47219] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1519 RNA, VGAM1520 RNA, VGAM1521 RNA, VGAM1522 RNA, VGAM1523 RNA and VGAM1524 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47220] VGAM1519 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1519 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1519 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1519 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47221] VGAM1520 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1520 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1520 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1520 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47222] VGAM1521 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1521 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1521 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1521 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47223] VGAM1522 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1522 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1522 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1522 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47224] VGAM1523 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1523 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1523 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1523 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47225] VGAM1524 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1524 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1524 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1524 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47226] It is appreciated that a function of VGR3425 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3425 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3425 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3425 gene: VGAM1519 host target protein, VGAM1520 host target protein, VGAM1521 host target protein, VGAM1522 host target protein, VGAM1523 host target protein and VGAM1524 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1519, VGAM1520, VGAM1521, VGAM1522, VGAM1523 and VGAM1524

[47227] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3426(VGR3426) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47228] VGR3426 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3426 gene was

detected is described hereinabove with reference to Figs. 6-15.

[47229] VGR3426 gene encodes VGR3426 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47230] VGR3426 precursor RNA folds spatially, forming VGR3426 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3426 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3426 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47231] VGR3426 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1525 precursor RNA, VGAM1526 precursor RNA and VGAM1527 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47232] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1525 RNA, VGAM1526 RNA and VGAM1527 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47233] VGAM1525 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1525 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1525 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1525 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47234] VGAM1526 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1526 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1526 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1526 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47235] VGAM1527 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1527 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1527 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1527 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47236] It is appreciated that a function of VGR3426 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3426 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3426 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3426 gene: VGAM1525 host target protein, VGAM1526 host target protein and VGAM1527 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1525, VGAM1526 and VGAM1527

[47237] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3427(VGR3427) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[47238] VGR3427 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3427 gene was detected is described hereinabove with reference to Figs. 6-15.

[47239] VGR3427 gene encodes VGR3427 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47240] VGR3427 precursor RNA folds spatially, forming VGR3427 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3427 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3427 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47241] VGR3427 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1528 precursor RNA, VGAM1529 precursor RNA, VGAM1529 precursor RNA, VGAM1529 precursor RNA, VGAM1529 precursor RNA, VGAM1529 precursor RNA, VGAM1529 precursor RNA and VGAM1529 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47242] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1528 RNA, VGAM1529 RNA, VGAM1529 RNA, VGAM1529 RNA, VGAM1529 RNA, VGAM1529 RNA, VGAM1529 RNA and VGAM1529 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47243] VGAM1528 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1528 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1528 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1528 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47244] VGAM1529 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1529 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1529 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1529 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47245] VGAM1529 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1529 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1529 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1529 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47246] VGAM1529 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1529 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1529 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1529 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[47247] VGAM1529 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1529 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1529 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1529 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47248] VGAM1529 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1529 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1529 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1529 host target protein, herein schematically

represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47249] VGAM1529 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1529 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1529 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1529 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47250] VGAM1529 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1529 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1529 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA

into VGAM1529 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47251] It is appreciated that a function of VGR3427 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3427 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3427 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3427 gene: VGAM1528 host target protein, VGAM1529 host target protein, VGAM1529 host target protein, VGAM1529 host target protein, VGAM1529 host target protein, VGAM1529 host target protein, VGAM1529 host target protein and VGAM1529 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1528, VGAM1529, VGAM1529, VGAM1529, VGAM1529, VGAM1529, VGAM1529 and

VGAM1529

[47252] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3428(VGR3428) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47253] VGR3428 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3428 gene was detected is described hereinabove with reference to Figs. 6-15.

[47254] VGR3428 gene encodes VGR3428 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47255] VGR3428 precursor RNA folds spatially, forming VGR3428 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3428 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3428 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47256] VGR3428 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1529 precursor RNA, VGAM1530 precursor RNA, VGAM1531 precursor RNA, VGAM1532 precursor RNA, VGAM1533 precursor RNA, VGAM1534 precursor RNA, VGAM1535 precursor RNA and VGAM1536 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47257] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1529 RNA, VGAM1530 RNA, VGAM1531 RNA, VGAM1532 RNA,

VGAM1533 RNA, VGAM1534 RNA, VGAM1535 RNA and VGAM1536 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47258] VGAM1529 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1529 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1529 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1529 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47259] VGAM1530 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1530 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1530 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1530 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47260] VGAM1531 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1531 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1531 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1531 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47261] VGAM1532 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1532 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1532 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1532 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47262] VGAM1533 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1533 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1533 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1533 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47263] VGAM1534 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1534 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1534 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1534 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47264] VGAM1535 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1535 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1535 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1535 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47265] VGAM1536 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1536 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1536 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1536 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47266] It is appreciated that a function of VGR3428 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3428 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3428 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3428 gene: VGAM1529 host target protein, VGAM1530 host target protein, VGAM1531 host target protein, VGAM1532 host target protein, VGAM1533 host target protein, VGAM1534

host target protein, VGAM1535 host target protein and VGAM1536 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1529, VGAM1530, VGAM1531, VGAM1532, VGAM1533, VGAM1534, VGAM1535 and VGAM1536

[47267] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3429(VGR3429) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47268] VGR3429 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3429 gene was detected is described hereinabove with reference to Figs. 6-15.

[47269] VGR3429 gene encodes VGR3429 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[47270] VGR3429 precursor RNA folds spatially, forming VGR3429 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3429 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3429 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47271] VGR3429 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1537 precursor RNA, VGAM1538 precursor RNA and VGAM1539 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47272] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1537 RNA, VGAM1538 RNA and VGAM1539 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47273] VGAM1537 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1537 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1537 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1537 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47274] VGAM1538 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1538 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1538 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1538 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47275] VGAM1539 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1539 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1539 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1539 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47276] It is appreciated that a function of VGR3429 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3429 gene include

diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3429 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3429 gene: VGAM1537 host target protein, VGAM1538 host target protein and VGAM1539 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1537, VGAM1538 and VGAM1539

[47277] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3430(VGR3430) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47278] VGR3430 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3430 gene was detected is described hereinabove with reference to Figs. 6-15.

[47279] VGR3430 gene encodes VGR3430 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47280] VGR3430 precursor RNA folds spatially, forming VGR3430 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3430 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3430 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47281] VGR3430 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 7 separate VGAM precursor RNAs, VGAM1540 precursor RNA, VGAM1541 precursor RNA, VGAM1542 precursor RNA, VGAM1543 precursor RNA, VGAM1544 precursor RNA, VGAM1545 pre-

cursor RNA and VGAM1546 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR and VGAM7 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47282] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1540 RNA, VGAM1541 RNA, VGAM1542 RNA, VGAM1543 RNA, VGAM1544 RNA, VGAM1545 RNA and VGAM1546 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA and VGAM7 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47283] VGAM1540 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1540 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1540 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1540 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47284] VGAM1541 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1541 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1541 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1541 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47285] VGAM1542 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1542 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1542 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1542 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47286] VGAM1543 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1543 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1543 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1543 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47287] VGAM1544 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1544 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1544 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1544 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47288] VGAM1545 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1545 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1545 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1545 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47289] VGAM1546 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1546 host target RNA, herein schematically represented by VGAM7

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1546 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1546 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47290] It is appreciated that a function of VGR3430 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3430 gene include diagnosis, prevention and treatment of viral infection by Murid herpesvirus 4. Specific functions, and accordingly utilities, of VGR3430 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3430 gene: VGAM1540 host target protein, VGAM1541 host target protein, VGAM1542 host target protein, VGAM1543 host target protein, VGAM1544 host target protein, VGAM1545 host target protein and VGAM1546 host target protein, herein schematically represented by VGAM1 HOST TARGET

PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1540, VGAM1541, VGAM1542, VGAM1543, VGAM1544, VGAM1545 and VGAM1546

[47291] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3431(VGR3431) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47292] VGR3431 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3431 gene was detected is described hereinabove with reference to Figs. 6-15.

[47293] VGR3431 gene encodes VGR3431 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47294] VGR3431 precursor RNA folds spatially, forming VGR3431 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3431 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3431 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47295] VGR3431 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1547 precursor RNA, VGAM1548 precursor RNA, VGAM1549 precursor RNA, VGAM1550 precursor RNA, VGAM1551 precursor RNA, VGAM1552 precursor RNA, VGAM1553 precursor RNA and VGAM1554 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47296] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1547 RNA, VGAM1548 RNA, VGAM1549 RNA, VGAM1550 RNA, VGAM1551 RNA, VGAM1552 RNA, VGAM1553 RNA and VGAM1554 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47297] VGAM1547 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1547 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1547 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1547 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47298] VGAM1548 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1548 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1548 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1548 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47299] VGAM1549 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1549 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1549 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1549 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47300] VGAM1550 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1550 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1550 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1550 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47301] VGAM1551 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1551 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1551 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1551 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[47302] VGAM1552 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1552 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1552 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1552 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47303] VGAM1553 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1553 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1553 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1553 host target protein, herein schematically

represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47304] VGAM1554 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1554 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1554 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1554 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47305] It is appreciated that a function of VGR3431 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3431 gene include diagnosis, prevention and treatment of viral infection by Poliovirus. Specific functions, and accordingly utilities, of VGR3431 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs com-

prised in the operon-like cluster of VGR3431 gene: VGAM1547 host target protein, VGAM1548 host target protein, VGAM1549 host target protein, VGAM1550 host target protein, VGAM1551 host target protein, VGAM1552 host target protein, VGAM1553 host target protein and VGAM1554 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1547, VGAM1548, VGAM1549, VGAM1550, VGAM1551, VGAM1552, VGAM1553 and VGAM1554

[47306] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3432(VGR3432) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47307] VGR3432 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3432 gene was

detected is described hereinabove with reference to Figs. 6-15.

[47308] VGR3432 gene encodes VGR3432 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47309] VGR3432 precursor RNA folds spatially, forming VGR3432 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3432 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3432 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47310] VGR3432 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1555 precursor RNA, VGAM1556 precursor RNA, VGAM1557 precursor RNA, VGAM1558 precursor RNA, VGAM1559 precursor RNA, VGAM1560 precursor RNA, VGAM1561 precursor RNA and VGAM1562

precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47311] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1555 RNA, VGAM1556 RNA, VGAM1557 RNA, VGAM1558 RNA, VGAM1559 RNA, VGAM1560 RNA, VGAM1561 RNA and VGAM1562 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47312] VGAM1555 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1555 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1555 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1555 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47313] VGAM1556 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1556 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1556 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1556 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47314] VGAM1557 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1557 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1557 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1557 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47315] VGAM1558 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1558 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1558 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1558 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47316] VGAM1559 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1559 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1559 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1559 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47317] VGAM1560 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1560 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1560 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1560 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47318] VGAM1561 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1561 host

target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1561 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1561 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47319] VGAM1562 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1562 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1562 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1562 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47320] It is appreciated that a function of VGR3432 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3432 gene include diagnosis, prevention and treatment of viral infection by Equine arteritis virus. Specific functions, and accordingly utilities, of VGR3432 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3432 gene: VGAM1555 host target protein, VGAM1556 host target protein, VGAM1557 host target protein, VGAM1558 host target protein, VGAM1559 host target protein, VGAM1560 host target protein, VGAM1561 host target protein and VGAM1562 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1555, VGAM1556, VGAM1557, VGAM1558, VGAM1559, VGAM1560, VGAM1561 and VGAM1562

[47321] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3433(VGR3433) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47322] VGR3433 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3433 gene was detected is described hereinabove with reference to Figs. 6-15.

[47323] VGR3433 gene encodes VGR3433 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47324] VGR3433 precursor RNA folds spatially, forming VGR3433 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3433 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3433 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47325] VGR3433 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1564 precursor RNA, VGAM1565 precursor RNA, VGAM1566 precursor RNA, VGAM1567 precursor RNA, VGAM1568 precursor RNA, VGAM1569 precursor RNA, VGAM1570 precursor RNA and VGAM1571 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47326] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1564 RNA, VGAM1565 RNA, VGAM1566 RNA, VGAM1567 RNA, VGAM1568 RNA, VGAM1569 RNA, VGAM1570 RNA and VGAM1571 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs correspond-

ing to VGAM RNA of Fig. 8.

[47327] VGAM1564 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1564 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1564 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1564 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47328] VGAM1565 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1565 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1565 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1565 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47329] VGAM1566 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1566 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1566 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1566 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47330] VGAM1567 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1567 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1567 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM1567 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47331] VGAM1568 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1568 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1568 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1568 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47332] VGAM1569 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1569 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1569 host target RNA, herein

schematically represented by VGAM6 HOST TARGET RNA into VGAM1569 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47333] VGAM1570 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1570 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1570 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1570 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47334] VGAM1571 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1571 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1571 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1571 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47335] It is appreciated that a function of VGR3433 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3433 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3433 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3433 gene: VGAM1564 host target protein, VGAM1565 host target protein, VGAM1566 host target protein, VGAM1567 host target protein, VGAM1568 host target protein, VGAM1569 host target protein, VGAM1570 host target protein and VGAM1571 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elabo-

rated hereinabove with reference to VGAM1564, VGAM1565, VGAM1566, VGAM1567, VGAM1568, VGAM1569, VGAM1570 and VGAM1571

[47336] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3434(VGR3434) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47337] VGR3434 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3434 gene was detected is described hereinabove with reference to Figs. 6-15.

[47338] VGR3434 gene encodes VGR3434 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47339] VGR3434 precursor RNA folds spatially, forming VGR3434 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3434 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3434 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47340] VGR3434 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1572 precursor RNA, VGAM1573 precursor RNA and VGAM1574 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47341] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1572 RNA, VGAM1573 RNA and VGAM1574 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM

RNAs corresponding to VGAM RNA of Fig. 8.

[47342] VGAM1572 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1572 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1572 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1572 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47343] VGAM1573 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1573 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1573 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1573 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47344] VGAM1574 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1574 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1574 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1574 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47345] It is appreciated that a function of VGR3434 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3434 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3434 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by

VGAM RNAs comprised in the operon-like cluster of VGR3434 gene: VGAM1572 host target protein, VGAM1573 host target protein and VGAM1574 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1572, VGAM1573 and VGAM1574

[47346] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3435(VGR3435) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47347] VGR3435 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3435 gene was detected is described hereinabove with reference to Figs. 6-15.

[47348] VGR3435 gene encodes VGR3435 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[47349] VGR3435 precursor RNA folds spatially, forming VGR3435 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3435 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3435 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47350] VGR3435 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1575 precursor RNA, VGAM1576 precursor RNA, VGAM1577 precursor RNA, VGAM1578 precursor RNA, VGAM1579 precursor RNA, VGAM1580 precursor RNA, VGAM1581 precursor RNA and VGAM1582 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRE-

CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47351] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1575 RNA, VGAM1576 RNA, VGAM1577 RNA, VGAM1578 RNA, VGAM1579 RNA, VGAM1580 RNA, VGAM1581 RNA and VGAM1582 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47352] VGAM1575 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1575 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1575 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1575 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47353] VGAM1576 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1576 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1576 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1576 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47354] VGAM1577 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1577 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1577 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM1577 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47355] VGAM1578 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1578 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1578 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1578 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47356] VGAM1579 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1579 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1579 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM1579 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47357] VGAM1580 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1580 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1580 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1580 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47358] VGAM1581 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1581 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1581 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1581 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47359] VGAM1582 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1582 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1582 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1582 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47360] It is appreciated that a function of VGR3435 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3435 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly

utilities, of VGR3435 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3435 gene: VGAM1575 host target protein, VGAM1576 host target protein, VGAM1577 host target protein, VGAM1578 host target protein, VGAM1579 host target protein, VGAM1580 host target protein, VGAM1581 host target protein and VGAM1582 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1575, VGAM1576, VGAM1577, VGAM1578, VGAM1579, VGAM1580, VGAM1581 and VGAM1582

[47361] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3436(VGR3436) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47362] VGR3436 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3436 gene was detected is described hereinabove with reference to Figs. 6-15.

[47363] VGR3436 gene encodes VGR3436 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47364] VGR3436 precursor RNA folds spatially, forming VGR3436 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3436 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3436 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47365] VGR3436 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1583 precursor RNA and VGAM1584

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47366] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1583 RNA and VGAM1584 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47367] VGAM1583 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1583 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1583 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1583 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[47368] VGAM1584 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1584 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1584 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1584 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47369] It is appreciated that a function of VGR3436 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3436 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3436 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3436 gene:

VGAM1583 host target protein and VGAM1584 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1583 and VGAM1584

[47370] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3437(VGR3437) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47371] VGR3437 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3437 gene was detected is described hereinabove with reference to Figs. 6-15.

[47372] VGR3437 gene encodes VGR3437 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47373] VGR3437 precursor RNA folds spatially, forming VGR3437

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3437 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3437 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47374] VGR3437 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM1585 precursor RNA, VGAM1586 precursor RNA, VGAM1587 precursor RNA, VGAM1588 precursor RNA, VGAM1589 precursor RNA and VGAM1590 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47375] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1585 RNA, VGAM1586 RNA, VGAM1587 RNA, VGAM1588 RNA, VGAM1589 RNA and VGAM1590 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47376] VGAM1585 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1585 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1585 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1585 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47377] VGAM1586 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1586 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1586 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1586 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47378] VGAM1587 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1587 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1587 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1587 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47379] VGAM1588 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1588 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1588 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1588 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47380] VGAM1589 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1589 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1589 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1589 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47381] VGAM1590 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1590 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1590 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1590 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47382] It is appreciated that a function of VGR3437 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3437 gene include diagnosis, prevention and treatment of viral infection by Human enterovirus B. Specific functions, and accordingly utilities, of VGR3437 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3437 gene: VGAM1585 host target protein, VGAM1586 host target protein, VGAM1587 host target protein, VGAM1588 host

target protein, VGAM1589 host target protein and VGAM1590 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1585, VGAM1586, VGAM1587, VGAM1588, VGAM1589 and VGAM1590

[47383] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3438(VGR3438) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47384] VGR3438 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3438 gene was detected is described hereinabove with reference to Figs. 6-15.

[47385] VGR3438 gene encodes VGR3438 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47386] VGR3438 precursor RNA folds spatially, forming VGR3438 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3438 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3438 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47387] VGR3438 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1591 precursor RNA, VGAM1592 precursor RNA, VGAM1593 precursor RNA, VGAM1594 precursor RNA, VGAM1595 precursor RNA, VGAM1596 precursor RNA, VGAM1597 precursor RNA and VGAM1598 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47388] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1591 RNA, VGAM1592 RNA, VGAM1593 RNA, VGAM1594 RNA, VGAM1595 RNA, VGAM1596 RNA, VGAM1597 RNA and VGAM1598 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47389] VGAM1591 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1591 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1591 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1591 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[47390] VGAM1592 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1592 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1592 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1592 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47391] VGAM1593 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1593 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1593 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1593 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47392] VGAM1594 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1594 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1594 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1594 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47393] VGAM1595 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1595 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1595 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM1595 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47394] VGAM1596 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1596 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1596 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1596 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47395] VGAM1597 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1597 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1597 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM1597 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47396] VGAM1598 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1598 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1598 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1598 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47397] It is appreciated that a function of VGR3438 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3438 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 4. Specific functions, and accordingly utilities, of VGR3438 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3438 gene: VGAM1591 host target protein, VGAM1592 host target protein, VGAM1593 host target protein, VGAM1594 host target protein, VGAM1595 host target protein, VGAM1596 host target protein, VGAM1597 host target protein and VGAM1598 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1591, VGAM1592, VGAM1593, VGAM1594, VGAM1595, VGAM1596, VGAM1597 and VGAM1598

[47398] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3439(VGR3439) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47399] VGR3439 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3439 gene was detected is described hereinabove with reference to Figs. 6-15.

[47400] VGR3439 gene encodes VGR3439 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47401] VGR3439 precursor RNA folds spatially, forming VGR3439 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3439 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3439 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47402] VGR3439 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1599 precursor RNA, VGAM1599 precursor RNA, VGAM1599 precursor RNA, VGAM1599 pre-

cursor RNA, VGAM1599 precursor RNA, VGAM1600 precursor RNA, VGAM1601 precursor RNA and VGAM1602 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47403] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1599 RNA, VGAM1599 RNA, VGAM1599 RNA, VGAM1599 RNA, VGAM1599 RNA, VGAM1600 RNA, VGAM1601 RNA and VGAM1602 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47404] VGAM1599 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1599 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1599 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1599 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47405] VGAM1599 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1599 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1599 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1599 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47406] VGAM1599 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1599 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1599 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1599 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47407] VGAM1599 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1599 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1599 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1599 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47408] VGAM1599 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1599 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1599 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1599 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47409] VGAM1600 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1600 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1600 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1600 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47410] VGAM1601 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1601 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1601 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1601 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47411] VGAM1602 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1602 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1602 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1602 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47412] It is appreciated that a function of VGR3439 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3439 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 86. Specific functions, and accordingly utilities, of VGR3439 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3439 gene: VGAM1599 host target protein, VGAM1599 host target protein, VGAM1599 host target protein, VGAM1599 host target protein, VGAM1599 host target protein, VGAM1600 host target protein, VGAM1601 host target protein and VGAM1602 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1599, VGAM1599, VGAM1599, VGAM1599, VGAM1599, VGAM1600, VGAM1601 and VGAM1602

[47413] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3440(VGR3440) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47414] VGR3440 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3440 gene was detected is described hereinabove with reference to Figs. 6-15.

[47415] VGR3440 gene encodes VGR3440 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47416] VGR3440 precursor RNA folds spatially, forming VGR3440 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3440 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3440 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47417] VGR3440 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA and VGAM1604 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47418] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA and VGAM1604 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47419] VGAM1604 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47420] VGAM1604 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47421] VGAM1604 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47422] VGAM1604 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47423] VGAM1604 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47424] VGAM1604 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47425] VGAM1604 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47426] VGAM1604 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47427] It is appreciated that a function of VGR3440 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3440 gene include diagnosis, prevention and treatment of viral infection by Zaire Ebola virus. Specific functions, and accordingly utilities, of VGR3440 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3440 gene: VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein and VGAM1604 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through

VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1604, VGAM1604, VGAM1604, VGAM1604, VGAM1604, VGAM1604, VGAM1604 and VGAM1604

[47428] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3441(VGR3441) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47429] VGR3441 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3441 gene was detected is described hereinabove with reference to Figs. 6-15.

[47430] VGR3441 gene encodes VGR3441 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47431] VGR3441 precursor RNA folds spatially, forming VGR3441 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3441 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3441 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47432] VGR3441 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA, VGAM1604 precursor RNA and VGAM1604 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47433] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA, VGAM1604 RNA and VGAM1604 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47434] VGAM1604 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47435] VGAM1604 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47436] VGAM1604 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47437] VGAM1604 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47438] VGAM1604 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[47439] VGAM1604 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47440] VGAM1604 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1604 host target protein, herein schematically

represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47441] VGAM1604 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1604 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1604 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1604 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47442] It is appreciated that a function of VGR3441 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3441 gene include diagnosis, prevention and treatment of viral infection by Zaire Ebola virus. Specific functions, and accordingly utilities, of VGR3441 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3441 gene: VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein, VGAM1604 host target protein and VGAM1604 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1604, VGAM1604, VGAM1604, VGAM1604, VGAM1604, VGAM1604, VGAM1604 and VGAM1604

[47443] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3442(VGR3442) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47444] VGR3442 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3442 gene was

detected is described hereinabove with reference to Figs. 6-15.

[47445] VGR3442 gene encodes VGR3442 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47446] VGR3442 precursor RNA folds spatially, forming VGR3442 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3442 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3442 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47447] VGR3442 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1605 precursor RNA and VGAM1606 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47448] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1605 RNA and VGAM1606 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47449] VGAM1605 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1605 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1605 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1605 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47450] VGAM1606 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1606 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1606 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1606 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47451] It is appreciated that a function of VGR3442 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3442 gene include diagnosis, prevention and treatment of viral infection by Zaire Ebola virus. Specific functions, and accordingly utilities, of VGR3442 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3442 gene: VGAM1605 host target protein and VGAM1606 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN re-

spectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1605 and VGAM1606

[47452] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3443(VGR3443) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47453] VGR3443 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3443 gene was detected is described hereinabove with reference to Figs. 6-15.

[47454] VGR3443 gene encodes VGR3443 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47455] VGR3443 precursor RNA folds spatially, forming VGR3443 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3443 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3443 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47456] VGR3443 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1607 precursor RNA, VGAM1608 precursor RNA, VGAM1609 precursor RNA, VGAM1610 precursor RNA, VGAM1611 precursor RNA, VGAM1612 precursor RNA, VGAM1613 precursor RNA and VGAM1614 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47457] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1607 RNA, VGAM1608 RNA, VGAM1609 RNA, VGAM1610 RNA, VGAM1611 RNA, VGAM1612 RNA, VGAM1613 RNA and VGAM1614 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47458] VGAM1607 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1607 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1607 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1607 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47459] VGAM1608 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1608 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1608 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1608 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47460] VGAM1609 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1609 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1609 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1609 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47461] VGAM1610 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1610 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1610 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1610 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47462] VGAM1611 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1611 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1611 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1611 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47463] VGAM1612 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1612 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1612 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1612 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47464] VGAM1613 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1613 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1613 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1613 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47465] VGAM1614 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1614 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1614 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1614 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47466] It is appreciated that a function of VGR3443 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3443 gene include diagnosis, prevention and treatment of viral infection by Parvovirus H1. Specific functions, and accordingly utilities, of VGR3443 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3443 gene: VGAM1607 host target protein, VGAM1608 host target

protein, VGAM1609 host target protein, VGAM1610 host target protein, VGAM1611 host target protein, VGAM1612 host target protein, VGAM1613 host target protein and VGAM1614 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1607, VGAM1608, VGAM1609, VGAM1610, VGAM1611, VGAM1612, VGAM1613 and VGAM1614

[47467] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3444(VGR3444) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47468] VGR3444 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3444 gene was detected is described hereinabove with reference to Figs. 6-15.

[47469] VGR3444 gene encodes VGR3444 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47470] VGR3444 precursor RNA folds spatially, forming VGR3444 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3444 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3444 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47471] VGR3444 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1615 precursor RNA and VGAM1616 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47472] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1615 RNA and VGAM1616 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47473] VGAM1615 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1615 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1615 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1615 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47474] VGAM1616 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1616 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1616 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1616 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47475] It is appreciated that a function of VGR3444 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3444 gene include diagnosis, prevention and treatment of viral infection by Parvovirus H1. Specific functions, and accordingly utilities, of VGR3444 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3444 gene: VGAM1615 host target protein and VGAM1616 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1615 and

VGAM1616

[47476] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3445(VGR3445) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47477] VGR3445 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3445 gene was detected is described hereinabove with reference to Figs. 6-15.

[47478] VGR3445 gene encodes VGR3445 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47479] VGR3445 precursor RNA folds spatially, forming VGR3445 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3445 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3445 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47480] VGR3445 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1620 precursor RNA and VGAM1621 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47481] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1620 RNA and VGAM1621 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47482] VGAM1620 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1620 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1620 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1620 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47483] VGAM1621 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1621 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1621 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1621 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47484] It is appreciated that a function of VGR3445 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3445 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3445 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3445 gene: VGAM1620 host target protein and VGAM1621 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1620 and VGAM1621

[47485] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3446(VGR3446) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47486] VGR3446 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3446 gene was detected is described hereinabove with reference to Figs. 6-15.

[47487] VGR3446 gene encodes VGR3446 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47488] VGR3446 precursor RNA folds spatially, forming VGR3446 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3446 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3446 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47489] VGR3446 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1622 precursor RNA and VGAM1623

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47490] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1622 RNA and VGAM1623 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47491] VGAM1622 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1622 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1622 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1622 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[47492] VGAM1623 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1623 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1623 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1623 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47493] It is appreciated that a function of VGR3446 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3446 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3446 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like clus-

ter of VGR3446 gene: VGAM1622 host target protein and VGAM1623 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1622 and VGAM1623

[47494] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3447(VGR3447) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47495] VGR3447 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3447 gene was detected is described hereinabove with reference to Figs. 6-15.

[47496] VGR3447 gene encodes VGR3447 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47497] VGR3447 precursor RNA folds spatially, forming VGR3447

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3447 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3447 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47498] VGR3447 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1626 precursor RNA and VGAM1627 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47499] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1626 RNA and VGAM1627 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47500] VGAM1626 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1626 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1626 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1626 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47501] VGAM1627 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1627 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1627 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1627 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47502] It is appreciated that a function of VGR3447 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3447 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3447 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3447 gene: VGAM1626 host target protein and VGAM1627 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1626 and VGAM1627

[47503] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3448(VGR3448) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47504] VGR3448 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3448 gene was detected is described hereinabove with reference to Figs. 6-15.

[47505] VGR3448 gene encodes VGR3448 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47506] VGR3448 precursor RNA folds spatially, forming VGR3448 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3448 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3448 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[47507] VGR3448 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1629 precursor RNA and VGAM1630 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47508] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1629 RNA and VGAM1630 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47509] VGAM1629 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1629 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1629 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1629 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47510] VGAM1630 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1630 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1630 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1630 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47511] It is appreciated that a function of VGR3448 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3448 gene include diagnosis, prevention and treatment of viral infection by

Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3448 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3448 gene: VGAM1629 host target protein and VGAM1630 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN re- spectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1629 and VGAM1630

[47512] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3449(VGR3449) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47513] VGR3449 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3449 gene was detected is described hereinabove with reference to Figs.

6-15.

[47514] VGR3449 gene encodes VGR3449 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47515] VGR3449 precursor RNA folds spatially, forming VGR3449 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3449 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3449 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47516] VGR3449 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1632 precursor RNA and VGAM1633 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[47517] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1632 RNA and VGAM1633 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47518] VGAM1632 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1632 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1632 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1632 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47519] VGAM1633 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1633 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1633 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1633 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47520] It is appreciated that a function of VGR3449 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3449 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3449 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3449 gene: VGAM1632 host target protein and VGAM1633 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM1632 and VGAM1633

[47521] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3450(VGR3450) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47522] VGR3450 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3450 gene was detected is described hereinabove with reference to Figs. 6-15.

[47523] VGR3450 gene encodes VGR3450 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47524] VGR3450 precursor RNA folds spatially, forming VGR3450 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3450 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3450 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47525] VGR3450 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1634 precursor RNA, VGAM1635 precursor RNA and VGAM1636 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47526] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1634 RNA, VGAM1635 RNA and VGAM1636 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47527] VGAM1634 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1634 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1634 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1634 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47528] VGAM1635 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1635 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1635 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1635 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[47529] VGAM1636 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1636 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1636 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1636 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47530] It is appreciated that a function of VGR3450 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3450 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3450 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3450 gene:

VGAM1634 host target protein, VGAM1635 host target protein and VGAM1636 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1634, VGAM1635 and VGAM1636

[47531] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3451(VGR3451) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47532] VGR3451 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3451 gene was detected is described hereinabove with reference to Figs. 6-15.

[47533] VGR3451 gene encodes VGR3451 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47534] VGR3451 precursor RNA folds spatially, forming VGR3451 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3451 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3451 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47535] VGR3451 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1637 precursor RNA, VGAM1638 precursor RNA and VGAM1639 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47536] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1637 RNA, VGAM1638 RNA and VGAM1639 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47537] VGAM1637 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1637 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1637 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1637 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47538] VGAM1638 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1638 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1638 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1638 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47539] VGAM1639 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1639 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1639 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1639 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47540] It is appreciated that a function of VGR3451 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3451 gene include diagnosis, prevention and treatment of viral infection by

Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGR3451 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3451 gene: VGAM1637 host target protein, VGAM1638 host target protein and VGAM1639 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1637, VGAM1638 and VGAM1639

[47541] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3452(VGR3452) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47542] VGR3452 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3452 gene was

detected is described hereinabove with reference to Figs. 6-15.

[47543] VGR3452 gene encodes VGR3452 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47544] VGR3452 precursor RNA folds spatially, forming VGR3452 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3452 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3452 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47545] VGR3452 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1641 precursor RNA, VGAM1642 precursor RNA and VGAM1643 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47546] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1641 RNA, VGAM1642 RNA and VGAM1643 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47547] VGAM1641 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1641 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1641 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1641 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47548] VGAM1642 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1642 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1642 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1642 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47549] VGAM1643 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1643 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1643 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1643 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47550] It is appreciated that a function of VGR3452 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3452 gene include diagnosis, prevention and treatment of viral infection by Aichi virus. Specific functions, and accordingly utilities, of VGR3452 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3452 gene: VGAM1641 host target protein, VGAM1642 host target protein and VGAM1643 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1641, VGAM1642 and VGAM1643

[47551] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3453(VGR3453) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[47552] VGR3453 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3453 gene was detected is described hereinabove with reference to Figs. 6-15.

[47553] VGR3453 gene encodes VGR3453 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47554] VGR3453 precursor RNA folds spatially, forming VGR3453 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3453 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3453 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47555] VGR3453 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1644 precursor RNA and VGAM1645 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47556] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1644 RNA and VGAM1645 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47557] VGAM1644 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1644 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1644 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1644 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47558] VGAM1645 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1645 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1645 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1645 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47559] It is appreciated that a function of VGR3453 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3453 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 7. Specific functions, and accordingly utilities, of VGR3453 gene, herein designated VGR GENE, correlate with, and may be deduced from, the

identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3453 gene: VGAM1644 host target protein and VGAM1645 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1644 and VGAM1645

[47560] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3454(VGR3454) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47561] VGR3454 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3454 gene was detected is described hereinabove with reference to Figs. 6-15.

[47562] VGR3454 gene encodes VGR3454 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[47563] VGR3454 precursor RNA folds spatially, forming VGR3454 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3454 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3454 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47564] VGR3454 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1647 precursor RNA and VGAM1648 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47565] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1647 RNA and VGAM1648 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47566] VGAM1647 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1647 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1647 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1647 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47567] VGAM1648 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1648 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1648 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1648 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47568] It is appreciated that a function of VGR3454 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3454 gene include diagnosis, prevention and treatment of viral infection by Avian carcinoma virus. Specific functions, and accordingly utilities, of VGR3454 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3454 gene: VGAM1647 host target protein and VGAM1648 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1647 and VGAM1648

[47569] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3455(VGR3455) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47570] VGR3455 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3455 gene was detected is described hereinabove with reference to Figs. 6-15.

[47571] VGR3455 gene encodes VGR3455 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47572] VGR3455 precursor RNA folds spatially, forming VGR3455 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3455 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3455 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47573] VGR3455 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1649 precursor RNA, VGAM1650 precursor RNA, VGAM1651 precursor RNA and VGAM1652 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47574] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1649 RNA, VGAM1650 RNA, VGAM1651 RNA and VGAM1652 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47575] VGAM1649 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1649 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1649 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1649 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47576] VGAM1650 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1650 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1650 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1650 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47577] VGAM1651 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1651 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1651 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1651 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47578] VGAM1652 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1652 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1652 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1652 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[47579] It is appreciated that a function of VGR3455 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3455 gene include diagnosis, prevention and treatment of viral infection by Bean leafroll virus. Specific functions, and accordingly utilities, of VGR3455 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3455 gene: VGAM1649 host target protein, VGAM1650 host target protein, VGAM1651 host target protein and VGAM1652 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1649, VGAM1650, VGAM1651 and VGAM1652

[47580] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3456(VGR3456) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47581] VGR3456 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3456 gene was detected is described hereinabove with reference to Figs. 6-15.

[47582] VGR3456 gene encodes VGR3456 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47583] VGR3456 precursor RNA folds spatially, forming VGR3456 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3456 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3456 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47584] VGR3456 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1653 precursor RNA, VGAM1654 precursor RNA and VGAM1655 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47585] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1653 RNA, VGAM1654 RNA and VGAM1655 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47586] VGAM1653 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1653 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1653 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1653 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47587] VGAM1654 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1654 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1654 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1654 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47588] VGAM1655 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1655 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1655 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1655 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47589] It is appreciated that a function of VGR3456 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3456 gene include diagnosis, prevention and treatment of viral infection by Reston Ebola virus. Specific functions, and accordingly utilities, of VGR3456 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3456 gene: VGAM1653 host target protein, VGAM1654 host target protein and VGAM1655 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1653, VGAM1654 and VGAM1655

[47590] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3457(VGR3457) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47591] VGR3457 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3457 gene was detected is described hereinabove with reference to Figs. 6-15.

[47592] VGR3457 gene encodes VGR3457 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47593] VGR3457 precursor RNA folds spatially, forming VGR3457 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3457 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3457 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47594] VGR3457 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1656 precursor RNA and VGAM1657 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47595] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1656 RNA and VGAM1657 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47596] VGAM1656 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1656 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1656 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1656 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47597] VGAM1657 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1657 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1657 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1657 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47598] It is appreciated that a function of VGR3457 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3457 gene include diagnosis, prevention and treatment of viral infection by African swine fever virus. Specific functions, and accordingly utilities, of VGR3457 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3457 gene: VGAM1656 host target protein and VGAM1657 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1656 and VGAM1657

[47599] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3458(VGR3458) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47600] VGR3458 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3458 gene was detected is described hereinabove with reference to Figs. 6-15.

[47601] VGR3458 gene encodes VGR3458 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47602] VGR3458 precursor RNA folds spatially, forming VGR3458 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3458 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3458 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47603] VGR3458 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1658 precursor RNA, VGAM1659 precursor RNA, VGAM1660 precursor RNA, VGAM1661 pre-

cursor RNA and VGAM1662 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47604] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1658 RNA, VGAM1659 RNA, VGAM1660 RNA, VGAM1661 RNA and VGAM1662 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47605] VGAM1658 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1658 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1658 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1658 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47606] VGAM1659 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1659 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1659 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1659 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47607] VGAM1660 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1660 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1660 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM1660 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47608] VGAM1661 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1661 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1661 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1661 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47609] VGAM1662 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1662 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1662 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1662 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47610] It is appreciated that a function of VGR3458 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3458 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 6. Specific functions, and accordingly utilities, of VGR3458 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3458 gene: VGAM1658 host target protein, VGAM1659 host target protein, VGAM1660 host target protein, VGAM1661 host target protein and VGAM1662 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1658, VGAM1659, VGAM1660, VGAM1661 and VGAM1662

[47611] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3459(VGR3459) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47612] VGR3459 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3459 gene was detected is described hereinabove with reference to Figs. 6-15.

[47613] VGR3459 gene encodes VGR3459 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47614] VGR3459 precursor RNA folds spatially, forming VGR3459 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3459 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3459 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47615] VGR3459 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1663 precursor RNA and VGAM1664 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47616] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1663 RNA and VGAM1664 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47617] VGAM1663 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1663 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1663 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1663 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47618] VGAM1664 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1664 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1664 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1664 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47619] It is appreciated that a function of VGR3459 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3459 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus E. Specific functions, and accordingly utilities, of VGR3459 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3459 gene: VGAM1663 host target protein and VGAM1664 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1663 and VGAM1664

[47620] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3460(VGR3460) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47621] VGR3460 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3460 gene was detected is described hereinabove with reference to Figs. 6-15.

[47622] VGR3460 gene encodes VGR3460 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47623] VGR3460 precursor RNA folds spatially, forming VGR3460 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3460 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3460 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47624] VGR3460 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1665 precursor RNA, VGAM1666 precursor RNA, VGAM1667 precursor RNA and VGAM1668

precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47625] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1665 RNA, VGAM1666 RNA, VGAM1667 RNA and VGAM1668 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47626] VGAM1665 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1665 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1665 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1665 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47627] VGAM1666 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1666 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1666 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1666 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47628] VGAM1667 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1667 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1667 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM1667 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47629] VGAM1668 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1668 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1668 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1668 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47630] It is appreciated that a function of VGR3460 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3460 gene include diagnosis, prevention and treatment of viral infection by Alcelaphine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3460 gene, herein designated VGR

GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3460 gene: VGAM1665 host target protein, VGAM1666 host target protein, VGAM1667 host target protein and VGAM1668 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1665, VGAM1666, VGAM1667 and VGAM1668

[47631] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3461(VGR3461) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47632] VGR3461 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3461 gene was detected is described hereinabove with reference to Figs.

6-15.

[47633] VGR3461 gene encodes VGR3461 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47634] VGR3461 precursor RNA folds spatially, forming VGR3461 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3461 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3461 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47635] VGR3461 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1669 precursor RNA, VGAM1670 precursor RNA, VGAM1671 precursor RNA and VGAM1672 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47636] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1669 RNA, VGAM1670 RNA, VGAM1671 RNA and VGAM1672 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47637] VGAM1669 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1669 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1669 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1669 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47638] VGAM1670 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1670 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1670 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1670 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47639] VGAM1671 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1671 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1671 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1671 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[47640] VGAM1672 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1672 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1672 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1672 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47641] It is appreciated that a function of VGR3461 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3461 gene include diagnosis, prevention and treatment of viral infection by Diatraea saccharalis densovirus. Specific functions, and accordingly utilities, of VGR3461 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of

VGR3461 gene: VGAM1669 host target protein, VGAM1670 host target protein, VGAM1671 host target protein and VGAM1672 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1669, VGAM1670, VGAM1671 and VGAM1672

[47642] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3462(VGR3462) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47643] VGR3462 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3462 gene was detected is described hereinabove with reference to Figs. 6-15.

[47644] VGR3462 gene encodes VGR3462 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[47645] VGR3462 precursor RNA folds spatially, forming VGR3462 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3462 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3462 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47646] VGR3462 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1674 precursor RNA and VGAM1675 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47647] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1674 RNA and VGAM1675 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47648] VGAM1674 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1674 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1674 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1674 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47649] VGAM1675 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1675 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1675 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1675 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47650] It is appreciated that a function of VGR3462 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3462 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3462 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3462 gene: VGAM1674 host target protein and VGAM1675 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1674 and VGAM1675

[47651] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3463(VGR3463) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47652] VGR3463 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3463 gene was detected is described hereinabove with reference to Figs. 6-15.

[47653] VGR3463 gene encodes VGR3463 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47654] VGR3463 precursor RNA folds spatially, forming VGR3463 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3463 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3463 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47655] VGR3463 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1676 precursor RNA, VGAM1677 precursor RNA and VGAM1678 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47656] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1676 RNA, VGAM1677 RNA and VGAM1678 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47657] VGAM1676 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1676 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1676 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1676 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47658] VGAM1677 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1677 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1677 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1677 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47659] VGAM1678 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1678 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1678 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1678 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47660] It is appreciated that a function of VGR3463 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3463 gene include diagnosis, prevention and treatment of viral infection by Barley mild mosaic virus. Specific functions, and accordingly utilities, of VGR3463 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3463 gene: VGAM1676 host target protein, VGAM1677 host target protein and VGAM1678 host target protein, herein schematically represented by VGAM1 HOST TARGET PRO-

TEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1676, VGAM1677 and VGAM1678

[47661] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3464(VGR3464) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47662] VGR3464 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3464 gene was detected is described hereinabove with reference to Figs. 6-15.

[47663] VGR3464 gene encodes VGR3464 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47664] VGR3464 precursor RNA folds spatially, forming VGR3464 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3464 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3464 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47665] VGR3464 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1679 precursor RNA, VGAM1680 precursor RNA and VGAM1681 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47666] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1679 RNA, VGAM1680 RNA and VGAM1681 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2

RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47667] VGAM1679 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1679 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1679 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1679 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47668] VGAM1680 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1680 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1680 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1680 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47669] VGAM1681 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1681 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1681 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1681 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47670] It is appreciated that a function of VGR3464 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3464 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 2. Specific functions, and accordingly utilities, of VGR3464 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of

the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3464 gene: VGAM1679 host target protein, VGAM1680 host target protein and VGAM1681 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1679, VGAM1680 and VGAM1681

[47671] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3465(VGR3465) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47672] VGR3465 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3465 gene was detected is described hereinabove with reference to Figs. 6-15.

[47673] VGR3465 gene encodes VGR3465 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47674] VGR3465 precursor RNA folds spatially, forming VGR3465 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3465 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3465 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47675] VGR3465 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1682 precursor RNA and VGAM1683 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47676] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1682 RNA and VGAM1683 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47677] VGAM1682 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1682 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1682 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1682 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47678] VGAM1683 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1683 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1683 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1683 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47679] It is appreciated that a function of VGR3465 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3465 gene include diagnosis, prevention and treatment of viral infection by Lumpy skin disease virus. Specific functions, and accordingly utilities, of VGR3465 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3465 gene: VGAM1682 host target protein and VGAM1683 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1682 and VGAM1683

[47680] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3466(VGR3466) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47681] VGR3466 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3466 gene was detected is described hereinabove with reference to Figs. 6-15.

[47682] VGR3466 gene encodes VGR3466 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47683] VGR3466 precursor RNA folds spatially, forming VGR3466 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3466 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3466 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47684] VGR3466 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1684 precursor RNA, VGAM1685 precursor RNA and VGAM1686 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47685] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1684 RNA, VGAM1685 RNA and VGAM1686 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47686] VGAM1684 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1684 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1684 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1684 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47687] VGAM1685 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1685 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1685 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1685 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47688] VGAM1686 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1686 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1686 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1686 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47689] It is appreciated that a function of VGR3466 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3466 gene include diagnosis, prevention and treatment of viral infection by Sheeppox virus. Specific functions, and accordingly utilities, of VGR3466 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3466 gene: VGAM1684 host target protein, VGAM1685 host target protein and VGAM1686 host target protein, herein

schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1684, VGAM1685 and VGAM1686

[47690] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3467(VGR3467) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47691] VGR3467 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3467 gene was detected is described hereinabove with reference to Figs. 6-15.

[47692] VGR3467 gene encodes VGR3467 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47693] VGR3467 precursor RNA folds spatially, forming VGR3467 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3467 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3467 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47694] VGR3467 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1687 precursor RNA, VGAM1688 precursor RNA, VGAM1689 precursor RNA and VGAM1690 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47695] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1687

RNA, VGAM1688 RNA, VGAM1689 RNA and VGAM1690 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47696] VGAM1687 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1687 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1687 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1687 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47697] VGAM1688 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1688 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1688 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1688 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47698] VGAM1689 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1689 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1689 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1689 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47699] VGAM1690 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1690 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1690 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1690 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47700] It is appreciated that a function of VGR3467 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3467 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3467 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3467 gene: VGAM1687 host target protein, VGAM1688 host target protein, VGAM1689 host target protein and VGAM1690 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM1687, VGAM1688, VGAM1689 and VGAM1690

[47701] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3468(VGR3468) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47702] VGR3468 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3468 gene was detected is described hereinabove with reference to Figs. 6-15.

[47703] VGR3468 gene encodes VGR3468 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47704] VGR3468 precursor RNA folds spatially, forming VGR3468 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3468 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3468 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47705] VGR3468 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1692 precursor RNA, VGAM1693 precursor RNA, VGAM1694 precursor RNA, VGAM1695 precursor RNA and VGAM1696 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47706] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1692 RNA, VGAM1693 RNA, VGAM1694 RNA, VGAM1695 RNA and VGAM1696 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which

VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47707] VGAM1692 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1692 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1692 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1692 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47708] VGAM1693 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1693 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1693 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1693 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47709] VGAM1694 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1694 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1694 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1694 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47710] VGAM1695 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1695 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1695 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM1695 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47711] VGAM1696 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1696 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1696 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1696 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47712] It is appreciated that a function of VGR3468 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3468 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus C. Specific functions, and accordingly utilities, of VGR3468 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of

the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3468 gene: VGAM1692 host target protein, VGAM1693 host target protein, VGAM1694 host target protein, VGAM1695 host target protein and VGAM1696 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1692, VGAM1693, VGAM1694, VGAM1695 and VGAM1696

[47713] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3469(VGR3469) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47714] VGR3469 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3469 gene was detected is described hereinabove with reference to Figs. 6-15.

[47715] VGR3469 gene encodes VGR3469 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47716] VGR3469 precursor RNA folds spatially, forming VGR3469 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3469 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3469 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47717] VGR3469 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1697 precursor RNA, VGAM1698 precursor RNA and VGAM1699 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig.

8.

[47718] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1697 RNA, VGAM1698 RNA and VGAM1699 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47719] VGAM1697 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1697 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1697 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1697 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47720] VGAM1698 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1698 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1698 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1698 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47721] VGAM1699 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1699 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1699 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1699 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47722] It is appreciated that a function of VGR3469 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3469 gene include diagnosis, prevention and treatment of viral infection by Human T-lymphotropic virus 2. Specific functions, and accordingly utilities, of VGR3469 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3469 gene: VGAM1697 host target protein, VGAM1698 host target protein and VGAM1699 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1697, VGAM1698 and VGAM1699

[47723] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3470(VGR3470) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47724] VGR3470 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3470 gene was detected is described hereinabove with reference to Figs. 6-15.

[47725] VGR3470 gene encodes VGR3470 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47726] VGR3470 precursor RNA folds spatially, forming VGR3470 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3470 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3470 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47727] VGR3470 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1702 precursor RNA and VGAM1703

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47728] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1702 RNA and VGAM1703 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47729] VGAM1702 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1702 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1702 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1702 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[47730] VGAM1703 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1703 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1703 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1703 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47731] It is appreciated that a function of VGR3470 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3470 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3470 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3470 gene:

VGAM1702 host target protein and VGAM1703 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1702 and VGAM1703

[47732] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3471(VGR3471) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47733] VGR3471 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3471 gene was detected is described hereinabove with reference to Figs. 6-15.

[47734] VGR3471 gene encodes VGR3471 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47735] VGR3471 precursor RNA folds spatially, forming VGR3471

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3471 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3471 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47736] VGR3471 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1704 precursor RNA, VGAM1705 precursor RNA, VGAM1706 precursor RNA, VGAM1707 precursor RNA and VGAM1708 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47737] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1704 RNA, VGAM1705 RNA, VGAM1706 RNA, VGAM1707 RNA and VGAM1708 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47738] VGAM1704 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1704 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1704 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1704 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47739] VGAM1705 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1705 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1705 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1705 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47740] VGAM1706 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1706 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1706 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1706 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47741] VGAM1707 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1707 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1707 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1707 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47742] VGAM1708 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1708 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1708 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1708 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47743] It is appreciated that a function of VGR3471 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3471 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3471 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3471 gene: VGAM1704 host target protein, VGAM1705 host target protein, VGAM1706 host target protein, VGAM1707 host target protein and VGAM1708 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1704, VGAM1705, VGAM1706, VGAM1707 and VGAM1708

[47744] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3472(VGR3472) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47745] VGR3472 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3472 gene was detected is described hereinabove with reference to Figs. 6-15.

[47746] VGR3472 gene encodes VGR3472 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47747] VGR3472 precursor RNA folds spatially, forming VGR3472 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3472 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3472 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47748] VGR3472 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1709 precursor RNA and VGAM1709

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47749] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1709 RNA and VGAM1709 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47750] VGAM1709 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1709 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1709 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1709 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[47751] VGAM1709 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1709 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1709 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1709 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47752] It is appreciated that a function of VGR3472 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3472 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3472 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3472 gene:

VGAM1709 host target protein and VGAM1709 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1709 and VGAM1709

[47753] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3473(VGR3473) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47754] VGR3473 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3473 gene was detected is described hereinabove with reference to Figs. 6-15.

[47755] VGR3473 gene encodes VGR3473 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47756] VGR3473 precursor RNA folds spatially, forming VGR3473

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3473 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3473 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47757] VGR3473 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1710 precursor RNA, VGAM1711 precursor RNA and VGAM1712 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47758] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1710

RNA, VGAM1711 RNA and VGAM1712 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47759] VGAM1710 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1710 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1710 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1710 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47760] VGAM1711 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1711 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1711 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1711 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47761] VGAM1712 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1712 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1712 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1712 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47762] It is appreciated that a function of VGR3473 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3473 gene include diagnosis, prevention and treatment of viral infection by Myxoma virus. Specific functions, and accordingly utilities,

of VGR3473 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3473 gene: VGAM1710 host target protein, VGAM1711 host target protein and VGAM1712 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1710, VGAM1711 and VGAM1712

[47763] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3474(VGR3474) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47764] VGR3474 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3474 gene was detected is described hereinabove with reference to Figs.

6-15.

[47765] VGR3474 gene encodes VGR3474 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47766] VGR3474 precursor RNA folds spatially, forming VGR3474 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3474 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3474 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47767] VGR3474 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1713 precursor RNA and VGAM1714 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[47768] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1713 RNA and VGAM1714 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47769] VGAM1713 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1713 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1713 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1713 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47770] VGAM1714 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1714 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1714 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1714 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47771] It is appreciated that a function of VGR3474 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3474 gene include diagnosis, prevention and treatment of viral infection by Rabbit fibroma virus. Specific functions, and accordingly utilities, of VGR3474 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3474 gene: VGAM1713 host target protein and VGAM1714 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM1713 and VGAM1714

[47772] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3475(VGR3475) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47773] VGR3475 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3475 gene was detected is described hereinabove with reference to Figs. 6-15.

[47774] VGR3475 gene encodes VGR3475 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47775] VGR3475 precursor RNA folds spatially, forming VGR3475 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3475 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3475 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47776] VGR3475 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1716 precursor RNA, VGAM1716 precursor RNA, VGAM1716 precursor RNA, VGAM1716 precursor RNA, VGAM1716 precursor RNA, VGAM1716 precursor RNA, VGAM1716 precursor RNA and VGAM1716 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47777] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1716

RNA, VGAM1716 RNA, VGAM1716 RNA, VGAM1716 RNA, VGAM1716 RNA, VGAM1716 RNA, VGAM1716 RNA and VGAM1716 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47778] VGAM1716 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47779] VGAM1716 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47780] VGAM1716 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47781] VGAM1716 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47782] VGAM1716 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47783] VGAM1716 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47784] VGAM1716 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47785] VGAM1716 RNA, herein schematically represented by

VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47786] It is appreciated that a function of VGR3475 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3475 gene include diagnosis, prevention and treatment of viral infection by Feline leukemia virus. Specific functions, and accordingly utilities, of VGR3475 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3475 gene: VGAM1716 host target protein, VGAM1716 host target protein, VGAM1716 host target protein, VGAM1716 host

target protein, VGAM1716 host target protein, VGAM1716 host target protein, VGAM1716 host target protein and VGAM1716 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1716, VGAM1716, VGAM1716, VGAM1716, VGAM1716, VGAM1716, VGAM1716 and VGAM1716

[47787] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3476(VGR3476) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47788] VGR3476 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3476 gene was detected is described hereinabove with reference to Figs. 6-15.

[47789] VGR3476 gene encodes VGR3476 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47790] VGR3476 precursor RNA folds spatially, forming VGR3476 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3476 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3476 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47791] VGR3476 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1716 precursor RNA and VGAM1716 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47792] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1716 RNA and VGAM1716 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47793] VGAM1716 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47794] VGAM1716 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1716 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1716 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1716 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47795] It is appreciated that a function of VGR3476 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3476 gene include diagnosis, prevention and treatment of viral infection by Feline leukemia virus. Specific functions, and accordingly utilities, of VGR3476 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3476 gene: VGAM1716 host target protein and VGAM1716 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1716 and VGAM1716

[47796] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3477(VGR3477) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47797] VGR3477 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3477 gene was detected is described hereinabove with reference to Figs. 6-15.

[47798] VGR3477 gene encodes VGR3477 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47799] VGR3477 precursor RNA folds spatially, forming VGR3477 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3477 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3477 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47800] VGR3477 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1717 precursor RNA, VGAM1718 precursor RNA and VGAM1719 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47801] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1717 RNA, VGAM1718 RNA and VGAM1719 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47802] VGAM1717 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1717 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1717 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1717 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47803] VGAM1718 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1718 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1718 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1718 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47804] VGAM1719 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1719 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1719 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1719 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47805] It is appreciated that a function of VGR3477 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3477 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3477 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3477 gene: VGAM1717 host target protein, VGAM1718 host target protein and VGAM1719 host target protein, herein

schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1717, VGAM1718 and VGAM1719

[47806] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3478(VGR3478) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47807] VGR3478 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3478 gene was detected is described hereinabove with reference to Figs. 6-15.

[47808] VGR3478 gene encodes VGR3478 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47809] VGR3478 precursor RNA folds spatially, forming VGR3478 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3478 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3478 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47810] VGR3478 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1720 precursor RNA and VGAM1721 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47811] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1720 RNA and VGAM1721 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47812] VGAM1720 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1720 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1720 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1720 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47813] VGAM1721 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1721 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1721 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1721 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47814] It is appreciated that a function of VGR3478 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3478 gene include diagnosis, prevention and treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGR3478 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3478 gene: VGAM1720 host target protein and VGAM1721 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1720 and VGAM1721

[47815] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3479(VGR3479) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47816] VGR3479 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3479 gene was detected is described hereinabove with reference to Figs. 6-15.

[47817] VGR3479 gene encodes VGR3479 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47818] VGR3479 precursor RNA folds spatially, forming VGR3479 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3479 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3479 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47819] VGR3479 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1722 precursor RNA and VGAM1723 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47820] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1722 RNA and VGAM1723 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47821] VGAM1722 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1722 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1722 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1722 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47822] VGAM1723 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1723 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1723 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1723 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47823] It is appreciated that a function of VGR3479 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3479 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities,

of VGR3479 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3479 gene: VGAM1722 host target protein and VGAM1723 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1722 and VGAM1723

[47824] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3480(VGR3480) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47825] VGR3480 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3480 gene was detected is described hereinabove with reference to Figs. 6-15.

[47826] VGR3480 gene encodes VGR3480 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47827] VGR3480 precursor RNA folds spatially, forming VGR3480 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3480 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3480 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47828] VGR3480 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1724 precursor RNA, VGAM1725 precursor RNA, VGAM1726 precursor RNA and VGAM1727 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA

segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47829] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1724 RNA, VGAM1725 RNA, VGAM1726 RNA and VGAM1727 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47830] VGAM1724 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1724 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1724 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1724 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47831] VGAM1725 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1725 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1725 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1725 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47832] VGAM1726 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1726 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1726 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1726 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47833] VGAM1727 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1727 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1727 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1727 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47834] It is appreciated that a function of VGR3480 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3480 gene include diagnosis, prevention and treatment of viral infection by Rous sarcoma virus. Specific functions, and accordingly utilities, of VGR3480 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3480 gene: VGAM1724 host target protein, VGAM1725 host target

protein, VGAM1726 host target protein and VGAM1727 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1724, VGAM1725, VGAM1726 and VGAM1727

[47835] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3481(VGR3481) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47836] VGR3481 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3481 gene was detected is described hereinabove with reference to Figs. 6-15.

[47837] VGR3481 gene encodes VGR3481 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47838] VGR3481 precursor RNA folds spatially, forming VGR3481

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3481 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3481 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47839] VGR3481 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1729 precursor RNA and VGAM1730 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47840] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1729 RNA and VGAM1730 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47841] VGAM1729 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1729 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1729 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1729 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47842] VGAM1730 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1730 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1730 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1730 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47843] It is appreciated that a function of VGR3481 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3481 gene include diagnosis, prevention and treatment of viral infection by African swine fever virus. Specific functions, and accordingly utilities, of VGR3481 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3481 gene: VGAM1729 host target protein and VGAM1730 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1729 and VGAM1730

[47844] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3482(VGR3482) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47845] VGR3482 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3482 gene was detected is described hereinabove with reference to Figs. 6-15.

[47846] VGR3482 gene encodes VGR3482 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47847] VGR3482 precursor RNA folds spatially, forming VGR3482 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3482 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3482 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[47848] VGR3482 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1731 precursor RNA, VGAM1732 precursor RNA and VGAM1733 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47849] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1731 RNA, VGAM1732 RNA and VGAM1733 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47850] VGAM1731 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1731 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1731 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1731 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47851] VGAM1732 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1732 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1732 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1732 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47852] VGAM1733 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1733 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1733 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1733 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47853] It is appreciated that a function of VGR3482 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3482 gene include diagnosis, prevention and treatment of viral infection by Hendra virus. Specific functions, and accordingly utilities, of VGR3482 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3482 gene: VGAM1731 host target protein, VGAM1732 host target protein and VGAM1733 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated

hereinabove with reference to VGAM1731, VGAM1732 and VGAM1733

[47854] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3483(VGR3483) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47855] VGR3483 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3483 gene was detected is described hereinabove with reference to Figs. 6-15.

[47856] VGR3483 gene encodes VGR3483 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47857] VGR3483 precursor RNA folds spatially, forming VGR3483 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3483 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3483 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47858] VGR3483 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1734 precursor RNA, VGAM1735 precursor RNA and VGAM1736 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47859] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1734 RNA, VGAM1735 RNA and VGAM1736 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47860] VGAM1734 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1734 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1734 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1734 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47861] VGAM1735 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1735 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1735 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1735 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[47862] VGAM1736 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1736 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1736 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1736 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47863] It is appreciated that a function of VGR3483 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3483 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 54. Specific functions, and accordingly utilities, of VGR3483 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of

VGR3483 gene: VGAM1734 host target protein, VGAM1735 host target protein and VGAM1736 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1734, VGAM1735 and VGAM1736

[47864] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3484(VGR3484) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47865] VGR3484 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3484 gene was detected is described hereinabove with reference to Figs. 6-15.

[47866] VGR3484 gene encodes VGR3484 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47867] VGR3484 precursor RNA folds spatially, forming VGR3484 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3484 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3484 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47868] VGR3484 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1737 precursor RNA and VGAM1738 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47869] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1737

RNA and VGAM1738 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47870] VGAM1737 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1737 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1737 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1737 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47871] VGAM1738 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1738 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1738 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1738 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47872] It is appreciated that a function of VGR3484 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3484 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 3. Specific functions, and accordingly utilities, of VGR3484 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3484 gene: VGAM1737 host target protein and VGAM1738 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1737 and VGAM1738

[47873] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3485(VGR3485) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47874] VGR3485 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3485 gene was detected is described hereinabove with reference to Figs. 6-15.

[47875] VGR3485 gene encodes VGR3485 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47876] VGR3485 precursor RNA folds spatially, forming VGR3485 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3485 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3485 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47877] VGR3485 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1739 precursor RNA and VGAM1740 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47878] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1739 RNA and VGAM1740 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47879] VGAM1739 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1739 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1739 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1739 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47880] VGAM1740 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1740 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1740 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1740 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47881] It is appreciated that a function of VGR3485 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3485 gene include

diagnosis, prevention and treatment of viral infection by Foot-and-mouth disease virus SAT 2. Specific functions, and accordingly utilities, of VGR3485 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3485 gene: VGAM1739 host target protein and VGAM1740 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1739 and VGAM1740

[47882] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3486(VGR3486) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47883] VGR3486 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3486 gene was

detected is described hereinabove with reference to Figs. 6-15.

[47884] VGR3486 gene encodes VGR3486 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47885] VGR3486 precursor RNA folds spatially, forming VGR3486 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3486 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3486 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47886] VGR3486 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1741 precursor RNA and VGAM1742 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47887] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1741 RNA and VGAM1742 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47888] VGAM1741 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1741 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1741 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1741 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47889] VGAM1742 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1742 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1742 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1742 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47890] It is appreciated that a function of VGR3486 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3486 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3486 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3486 gene: VGAM1741 host target protein and VGAM1742 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN re-

spectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1741 and VGAM1742

[47891] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3487(VGR3487) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47892] VGR3487 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3487 gene was detected is described hereinabove with reference to Figs. 6-15.

[47893] VGR3487 gene encodes VGR3487 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47894] VGR3487 precursor RNA folds spatially, forming VGR3487 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3487 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3487 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47895] VGR3487 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM1743 precursor RNA, VGAM1743 precursor RNA, VGAM1743 precursor RNA, VGAM1743 precursor RNA, VGAM1743 precursor RNA, VGAM1743 precursor RNA, VGAM1743 precursor RNA and VGAM1743 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47896] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1743 RNA, VGAM1743 RNA, VGAM1743 RNA, VGAM1743 RNA, VGAM1743 RNA, VGAM1743 RNA, VGAM1743 RNA and VGAM1743 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47897] VGAM1743 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47898] VGAM1743 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47899] VGAM1743 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47900] VGAM1743 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47901] VGAM1743 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47902] VGAM1743 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[47903] VGAM1743 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[47904] VGAM1743 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[47905] It is appreciated that a function of VGR3487 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3487 gene include diagnosis, prevention and treatment of viral infection by Simian T-lymphotropic virus 1. Specific functions, and accordingly utilities, of VGR3487 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3487 gene: VGAM1743 host target protein,

VGAM1743 host target protein, VGAM1743 host target protein, VGAM1743 host target protein, VGAM1743 host target protein, VGAM1743 host target protein, VGAM1743 host target protein and VGAM1743 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1743, VGAM1743, VGAM1743, VGAM1743, VGAM1743, VGAM1743, VGAM1743 and VGAM1743

[47906] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3488(VGR3488) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47907] VGR3488 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3488 gene was detected is described hereinabove with reference to Figs. 6-15.

[47908] VGR3488 gene encodes VGR3488 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47909] VGR3488 precursor RNA folds spatially, forming VGR3488 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3488 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3488 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47910] VGR3488 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1743 precursor RNA, VGAM1743 precursor RNA, VGAM1743 precursor RNA and VGAM1744 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA

segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47911] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1743 RNA, VGAM1743 RNA, VGAM1743 RNA and VGAM1744 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47912] VGAM1743 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47913] VGAM1743 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[47914] VGAM1743 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1743 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1743 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1743 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47915] VGAM1744 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1744 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1744 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1744 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47916] It is appreciated that a function of VGR3488 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3488 gene include diagnosis, prevention and treatment of viral infection by Simian T-lymphotropic virus 1. Specific functions, and accordingly utilities, of VGR3488 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3488 gene: VGAM1743 host target protein, VGAM1743 host target protein, VGAM1743 host target protein and VGAM1744 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1743, VGAM1743, VGAM1743 and VGAM1744

[47917] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3489(VGR3489) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47918] VGR3489 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3489 gene was detected is described hereinabove with reference to Figs. 6-15.

[47919] VGR3489 gene encodes VGR3489 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47920] VGR3489 precursor RNA folds spatially, forming VGR3489 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3489 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3489 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[47921] VGR3489 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1746 precursor RNA, VGAM1747 precursor RNA and VGAM1748 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47922] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1746 RNA, VGAM1747 RNA and VGAM1748 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47923] VGAM1746 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1746 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1746 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1746 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47924] VGAM1747 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1747 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1747 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1747 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47925] VGAM1748 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1748 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1748 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1748 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47926] It is appreciated that a function of VGR3489 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3489 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3489 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3489 gene: VGAM1746 host target protein, VGAM1747 host target protein and VGAM1748 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated

hereinabove with reference to VGAM1746, VGAM1747 and VGAM1748

[47927] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3490(VGR3490) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47928] VGR3490 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3490 gene was detected is described hereinabove with reference to Figs. 6-15.

[47929] VGR3490 gene encodes VGR3490 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47930] VGR3490 precursor RNA folds spatially, forming VGR3490 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3490 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3490 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47931] VGR3490 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1750 precursor RNA and VGAM1751 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47932] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1750 RNA and VGAM1751 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47933] VGAM1750 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1750 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1750 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1750 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47934] VGAM1751 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1751 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1751 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1751 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47935] It is appreciated that a function of VGR3490 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3490 gene include diagnosis, prevention and treatment of viral infection by Tupaia paramyxovirus. Specific functions, and accordingly utilities, of VGR3490 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3490 gene: VGAM1750 host target protein and VGAM1751 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1750 and VGAM1751

[47936] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3491(VGR3491) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[47937] VGR3491 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3491 gene was detected is described hereinabove with reference to Figs. 6-15.

[47938] VGR3491 gene encodes VGR3491 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47939] VGR3491 precursor RNA folds spatially, forming VGR3491 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3491 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3491 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47940] VGR3491 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM pre-

cursor RNAs, VGAM1753 precursor RNA, VGAM1754 precursor RNA and VGAM1755 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47941] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1753 RNA, VGAM1754 RNA and VGAM1755 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47942] VGAM1753 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1753 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1753 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM1753 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47943] VGAM1754 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1754 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1754 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1754 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47944] VGAM1755 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1755 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1755 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM1755 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47945] It is appreciated that a function of VGR3491 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3491 gene include diagnosis, prevention and treatment of viral infection by Fowl adenovirus A. Specific functions, and accordingly utilities, of VGR3491 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3491 gene: VGAM1753 host target protein, VGAM1754 host target protein and VGAM1755 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1753, VGAM1754 and VGAM1755

[47946] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3492(VGR3492) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47947] VGR3492 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3492 gene was detected is described hereinabove with reference to Figs. 6-15.

[47948] VGR3492 gene encodes VGR3492 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47949] VGR3492 precursor RNA folds spatially, forming VGR3492 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3492 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3492 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47950] VGR3492 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1756 precursor RNA and VGAM1757 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47951] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1756 RNA and VGAM1757 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47952] VGAM1756 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1756 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1756 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1756 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47953] VGAM1757 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1757 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1757 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1757 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47954] It is appreciated that a function of VGR3492 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3492 gene include

diagnosis, prevention and treatment of viral infection by Beet yellows virus. Specific functions, and accordingly utilities, of VGR3492 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3492 gene: VGAM1756 host target protein and VGAM1757 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1756 and VGAM1757

[47955] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3493(VGR3493) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47956] VGR3493 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3493 gene was

detected is described hereinabove with reference to Figs. 6-15.

[47957] VGR3493 gene encodes VGR3493 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47958] VGR3493 precursor RNA folds spatially, forming VGR3493 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3493 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3493 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47959] VGR3493 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1759 precursor RNA, VGAM1760 precursor RNA, VGAM1761 precursor RNA and VGAM1762 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-

CURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47960] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1759 RNA, VGAM1760 RNA, VGAM1761 RNA and VGAM1762 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47961] VGAM1759 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1759 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1759 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1759 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[47962] VGAM1760 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1760 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1760 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1760 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47963] VGAM1761 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1761 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1761 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1761 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47964] VGAM1762 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1762 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1762 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1762 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47965] It is appreciated that a function of VGR3493 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3493 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3493 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are in-

hibited by VGAM RNAs comprised in the operon-like cluster of VGR3493 gene: VGAM1759 host target protein, VGAM1760 host target protein, VGAM1761 host target protein and VGAM1762 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1759, VGAM1760, VGAM1761 and VGAM1762

[47966] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3494(VGR3494) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47967] VGR3494 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3494 gene was detected is described hereinabove with reference to Figs. 6-15.

[47968] VGR3494 gene encodes VGR3494 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47969] VGR3494 precursor RNA folds spatially, forming VGR3494 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3494 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3494 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47970] VGR3494 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1764 precursor RNA, VGAM1765 precursor RNA, VGAM1766 precursor RNA, VGAM1767 precursor RNA and VGAM1768 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment,

corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47971] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1764 RNA, VGAM1765 RNA, VGAM1766 RNA, VGAM1767 RNA and VGAM1768 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47972] VGAM1764 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1764 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1764 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1764 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47973] VGAM1765 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1765 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1765 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1765 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47974] VGAM1766 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1766 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1766 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1766 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[47975] VGAM1767 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1767 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1767 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1767 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[47976] VGAM1768 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1768 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1768 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1768 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[47977] It is appreciated that a function of VGR3494 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3494 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3494 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3494 gene: VGAM1764 host target protein, VGAM1765 host target protein, VGAM1766 host target protein, VGAM1767 host target protein and VGAM1768 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1764, VGAM1765, VGAM1766, VGAM1767 and VGAM1768

[47978] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3495(VGR3495) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47979] VGR3495 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3495 gene was detected is described hereinabove with reference to Figs. 6-15.

[47980] VGR3495 gene encodes VGR3495 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47981] VGR3495 precursor RNA folds spatially, forming VGR3495 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3495 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3495 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47982] VGR3495 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1771 precursor RNA and VGAM1772 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47983] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1771 RNA and VGAM1772 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47984] VGAM1771 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1771 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1771 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1771 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47985] VGAM1772 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1772 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1772 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1772 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47986] It is appreciated that a function of VGR3495 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3495 gene include diagnosis, prevention and treatment of viral infection by Cercopithecine herpesvirus 7. Specific functions, and ac-

cordingly utilities, of VGR3495 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3495 gene: VGAM1771 host target protein and VGAM1772 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1771 and VGAM1772

[47987] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3496(VGR3496) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47988] VGR3496 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3496 gene was detected is described hereinabove with reference to Figs. 6-15.

[47989] VGR3496 gene encodes VGR3496 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47990] VGR3496 precursor RNA folds spatially, forming VGR3496 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3496 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3496 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[47991] VGR3496 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1774 precursor RNA and VGAM1775 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[47992] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1774 RNA and VGAM1775 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[47993] VGAM1774 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1774 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1774 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1774 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[47994] VGAM1775 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1775 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1775 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1775 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[47995] It is appreciated that a function of VGR3496 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3496 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3496 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3496 gene: VGAM1774 host target protein and VGAM1775 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1774 and

VGAM1775

[47996] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3497(VGR3497) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[47997] VGR3497 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3497 gene was detected is described hereinabove with reference to Figs. 6-15.

[47998] VGR3497 gene encodes VGR3497 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[47999] VGR3497 precursor RNA folds spatially, forming VGR3497 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3497 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3497 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48000] VGR3497 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1777 precursor RNA, VGAM1778 precursor RNA, VGAM1779 precursor RNA and VGAM1780 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48001] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1777 RNA, VGAM1778 RNA, VGAM1779 RNA and VGAM1780 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to

VGAM RNA of Fig. 8.

[48002] VGAM1777 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1777 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1777 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1777 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48003] VGAM1778 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1778 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1778 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1778 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48004] VGAM1779 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1779 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1779 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1779 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48005] VGAM1780 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1780 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1780 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM1780 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48006] It is appreciated that a function of VGR3497 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3497 gene include diagnosis, prevention and treatment of viral infection by Lymphocystis disease virus 1. Specific functions, and accordingly utilities, of VGR3497 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3497 gene: VGAM1777 host target protein, VGAM1778 host target protein, VGAM1779 host target protein and VGAM1780 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1777, VGAM1778, VGAM1779 and VGAM1780

[48007] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3498(VGR3498) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48008] VGR3498 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3498 gene was detected is described hereinabove with reference to Figs. 6-15.

[48009] VGR3498 gene encodes VGR3498 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48010] VGR3498 precursor RNA folds spatially, forming VGR3498 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3498 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3498 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48011] VGR3498 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1783 precursor RNA, VGAM1784 precursor RNA and VGAM1785 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48012] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1783 RNA, VGAM1784 RNA and VGAM1785 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48013] VGAM1783 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1783 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1783 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1783 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48014] VGAM1784 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1784 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1784 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1784 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48015] VGAM1785 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1785 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1785 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1785 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48016] It is appreciated that a function of VGR3498 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3498 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3498 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3498 gene: VGAM1783 host target protein, VGAM1784 host target protein and VGAM1785 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively.

The function of these host target genes is elaborated hereinabove with reference to VGAM1783, VGAM1784 and VGAM1785

[48017] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3499(VGR3499) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48018] VGR3499 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3499 gene was detected is described hereinabove with reference to Figs. 6-15.

[48019] VGR3499 gene encodes VGR3499 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48020] VGR3499 precursor RNA folds spatially, forming VGR3499 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3499 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3499 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48021] VGR3499 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM1787 precursor RNA, VGAM1788 precursor RNA, VGAM1789 precursor RNA, VGAM1790 precursor RNA and VGAM1791 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48022] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1787 RNA, VGAM1788 RNA, VGAM1789 RNA, VGAM1790 RNA and VGAM1791 RNA respectively, herein schematically

represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48023] VGAM1787 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1787 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1787 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1787 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48024] VGAM1788 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1788 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1788 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1788 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48025] VGAM1789 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1789 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1789 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1789 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48026] VGAM1790 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1790 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1790 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1790 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48027] VGAM1791 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM1791 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1791 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM1791 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48028] It is appreciated that a function of VGR3499 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3499 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly

utilities, of VGR3499 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3499 gene: VGAM1787 host target protein, VGAM1788 host target protein, VGAM1789 host target protein, VGAM1790 host target protein and VGAM1791 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1787, VGAM1788, VGAM1789, VGAM1790 and VGAM1791

[48029] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3500(VGR3500) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48030] VGR3500 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3500 gene was

detected is described hereinabove with reference to Figs. 6-15.

[48031] VGR3500 gene encodes VGR3500 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48032] VGR3500 precursor RNA folds spatially, forming VGR3500 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3500 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3500 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48033] VGR3500 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1792 precursor RNA and VGAM1793 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48034] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1792 RNA and VGAM1793 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48035] VGAM1792 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1792 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1792 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1792 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48036] VGAM1793 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1793 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1793 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1793 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48037] It is appreciated that a function of VGR3500 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3500 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3500 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3500 gene: VGAM1792 host target protein and VGAM1793 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN re-

spectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1792 and VGAM1793

[48038] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3501(VGR3501) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48039] VGR3501 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3501 gene was detected is described hereinabove with reference to Figs. 6-15.

[48040] VGR3501 gene encodes VGR3501 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48041] VGR3501 precursor RNA folds spatially, forming VGR3501 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3501 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3501 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48042] VGR3501 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1796 precursor RNA, VGAM1797 precursor RNA, VGAM1798 precursor RNA and VGAM1799 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48043] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1796 RNA, VGAM1797 RNA, VGAM1798 RNA and VGAM1799 RNA respectively, herein schematically represented by

VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48044] VGAM1796 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1796 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1796 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1796 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48045] VGAM1797 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1797 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1797 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1797 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48046] VGAM1798 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1798 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1798 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1798 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48047] VGAM1799 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1799 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1799 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1799 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48048] It is appreciated that a function of VGR3501 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3501 gene include diagnosis, prevention and treatment of viral infection by Spleen focus-forming virus. Specific functions, and accordingly utilities, of VGR3501 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3501 gene: VGAM1796 host target protein, VGAM1797 host target protein, VGAM1798 host target protein and VGAM1799 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1796, VGAM1797, VGAM1798 and VGAM1799

[48049] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3502(VGR3502) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48050] VGR3502 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3502 gene was detected is described hereinabove with reference to Figs. 6-15.

[48051] VGR3502 gene encodes VGR3502 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48052] VGR3502 precursor RNA folds spatially, forming VGR3502 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3502 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3502 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48053] VGR3502 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1800 precursor RNA, VGAM1801 precursor RNA, VGAM1802 precursor RNA and VGAM1803 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48054] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1800 RNA, VGAM1801 RNA, VGAM1802 RNA and VGAM1803 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48055] VGAM1800 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1800 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1800 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1800 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48056] VGAM1801 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1801 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1801 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1801 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[48057] VGAM1802 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1802 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1802 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1802 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48058] VGAM1803 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1803 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1803 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1803 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48059] It is appreciated that a function of VGR3502 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3502 gene include diagnosis, prevention and treatment of viral infection by Rice stripe virus. Specific functions, and accordingly utilities, of VGR3502 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3502 gene: VGAM1800 host target protein, VGAM1801 host target protein, VGAM1802 host target protein and VGAM1803 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1800, VGAM1801, VGAM1802 and VGAM1803

[48060] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3503(VGR3503) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48061] VGR3503 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3503 gene was detected is described hereinabove with reference to Figs. 6-15.

[48062] VGR3503 gene encodes VGR3503 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48063] VGR3503 precursor RNA folds spatially, forming VGR3503 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3503 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3503 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48064] VGR3503 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1804 precursor RNA and VGAM1805 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48065] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1804 RNA and VGAM1805 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48066] VGAM1804 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1804 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1804 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1804 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48067] VGAM1805 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1805 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1805 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1805 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48068] It is appreciated that a function of VGR3503 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3503 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utili-

ties, of VGR3503 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3503 gene: VGAM1804 host target protein and VGAM1805 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1804 and VGAM1805

[48069] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3504(VGR3504) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48070] VGR3504 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3504 gene was detected is described hereinabove with reference to Figs. 6-15.

[48071] VGR3504 gene encodes VGR3504 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48072] VGR3504 precursor RNA folds spatially, forming VGR3504 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3504 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3504 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48073] VGR3504 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1806 precursor RNA, VGAM1807 precursor RNA and VGAM1808 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig.

8.

[48074] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1806 RNA, VGAM1807 RNA and VGAM1808 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48075] VGAM1806 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1806 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1806 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1806 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48076] VGAM1807 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1807 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1807 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1807 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48077] VGAM1808 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1808 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1808 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1808 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48078] It is appreciated that a function of VGR3504 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3504 gene include diagnosis, prevention and treatment of viral infection by Avian carcinoma virus. Specific functions, and accordingly utilities, of VGR3504 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3504 gene: VGAM1806 host target protein, VGAM1807 host target protein and VGAM1808 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1806, VGAM1807 and VGAM1808

[48079] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3505(VGR3505) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48080] VGR3505 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3505 gene was detected is described hereinabove with reference to Figs. 6-15.

[48081] VGR3505 gene encodes VGR3505 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48082] VGR3505 precursor RNA folds spatially, forming VGR3505 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3505 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3505 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48083] VGR3505 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1811 precursor RNA, VGAM1812 pre-

cursor RNA, VGAM1813 precursor RNA and VGAM1814 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48084] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1811 RNA, VGAM1812 RNA, VGAM1813 RNA and VGAM1814 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48085] VGAM1811 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1811 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1811 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1811 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48086] VGAM1812 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1812 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1812 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1812 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48087] VGAM1813 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1813 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1813 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1813 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48088] VGAM1814 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1814 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1814 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1814 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48089] It is appreciated that a function of VGR3505 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3505 gene include diagnosis, prevention and treatment of viral infection by A-2 plaque virus. Specific functions, and accordingly utili-

ties, of VGR3505 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3505 gene: VGAM1811 host target protein, VGAM1812 host target protein, VGAM1813 host target protein and VGAM1814 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1811, VGAM1812, VGAM1813 and VGAM1814

[48090] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3506(VGR3506) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48091] VGR3506 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3506 gene was detected is described hereinabove with reference to Figs.

6-15.

[48092] VGR3506 gene encodes VGR3506 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48093] VGR3506 precursor RNA folds spatially, forming VGR3506 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3506 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3506 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48094] VGR3506 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM1815 precursor RNA, VGAM1816 precursor RNA, VGAM1817 precursor RNA and VGAM1818 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48095] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1815 RNA, VGAM1816 RNA, VGAM1817 RNA and VGAM1818 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48096] VGAM1815 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1815 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1815 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1815 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48097] VGAM1816 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1816 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1816 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1816 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48098] VGAM1817 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1817 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1817 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1817 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[48099] VGAM1818 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1818 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1818 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1818 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48100] It is appreciated that a function of VGR3506 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3506 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3506 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3506 gene:

VGAM1815 host target protein, VGAM1816 host target protein, VGAM1817 host target protein and VGAM1818 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1815, VGAM1816, VGAM1817 and VGAM1818

[48101] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3507(VGR3507) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48102] VGR3507 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3507 gene was detected is described hereinabove with reference to Figs. 6-15.

[48103] VGR3507 gene encodes VGR3507 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48104] VGR3507 precursor RNA folds spatially, forming VGR3507 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3507 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3507 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48105] VGR3507 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1819 precursor RNA, VGAM1820 precursor RNA and VGAM1821 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48106] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1819 RNA, VGAM1820 RNA and VGAM1821 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48107] VGAM1819 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1819 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1819 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1819 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48108] VGAM1820 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1820 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1820 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1820 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48109] VGAM1821 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1821 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1821 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1821 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48110] It is appreciated that a function of VGR3507 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3507 gene include diagnosis, prevention and treatment of viral infection by

Macaca mulatta rhadinovirus. Specific functions, and accordingly utilities, of VGR3507 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3507 gene: VGAM1819 host target protein, VGAM1820 host target protein and VGAM1821 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1819, VGAM1820 and VGAM1821

[48111] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3508(VGR3508) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48112] VGR3508 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3508 gene was

detected is described hereinabove with reference to Figs. 6-15.

[48113] VGR3508 gene encodes VGR3508 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48114] VGR3508 precursor RNA folds spatially, forming VGR3508 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3508 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3508 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48115] VGR3508 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1822 precursor RNA, VGAM1823 precursor RNA and VGAM1824 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48116] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1822 RNA, VGAM1823 RNA and VGAM1824 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48117] VGAM1822 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1822 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1822 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1822 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48118] VGAM1823 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1823 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1823 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1823 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48119] VGAM1824 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1824 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1824 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1824 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48120] It is appreciated that a function of VGR3508 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3508 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3508 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3508 gene: VGAM1822 host target protein, VGAM1823 host target protein and VGAM1824 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1822, VGAM1823 and VGAM1824

[48121] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3509(VGR3509) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[48122] VGR3509 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3509 gene was detected is described hereinabove with reference to Figs. 6-15.

[48123] VGR3509 gene encodes VGR3509 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48124] VGR3509 precursor RNA folds spatially, forming VGR3509 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3509 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3509 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48125] VGR3509 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1825 precursor RNA, VGAM1826 precursor RNA and VGAM1827 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48126] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1825 RNA, VGAM1826 RNA and VGAM1827 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48127] VGAM1825 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1825 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1825 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1825 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48128] VGAM1826 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1826 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1826 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1826 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48129] VGAM1827 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1827 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1827 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1827 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48130] It is appreciated that a function of VGR3509 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3509 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3509 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3509 gene: VGAM1825 host target protein, VGAM1826 host target protein and VGAM1827 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1825, VGAM1826 and VGAM1827

[48131] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3510(VGR3510) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48132] VGR3510 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3510 gene was detected is described hereinabove with reference to Figs. 6-15.

[48133] VGR3510 gene encodes VGR3510 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48134] VGR3510 precursor RNA folds spatially, forming VGR3510 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3510 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3510 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48135] VGR3510 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1828 precursor RNA and VGAM1829 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48136] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1828 RNA and VGAM1829 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48137] VGAM1828 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1828 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1828 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1828 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48138] VGAM1829 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1829 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1829 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1829 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48139] It is appreciated that a function of VGR3510 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3510 gene include diagnosis, prevention and treatment of viral infection by Frog adenovirus 1. Specific functions, and accordingly utilities, of VGR3510 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3510 gene: VGAM1828 host target protein and VGAM1829 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1828 and VGAM1829

[48140] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3511(VGR3511) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48141] VGR3511 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3511 gene was detected is described hereinabove with reference to Figs. 6-15.

[48142] VGR3511 gene encodes VGR3511 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48143] VGR3511 precursor RNA folds spatially, forming VGR3511 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3511 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3511 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48144] VGR3511 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1830 precursor RNA and VGAM1831 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively,

each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48145] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1830 RNA and VGAM1831 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48146] VGAM1830 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1830 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1830 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1830 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48147] VGAM1831 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1831 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1831 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1831 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48148] It is appreciated that a function of VGR3511 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3511 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3511 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3511 gene: VGAM1830 host target protein and VGAM1831 host target protein, herein schematically rep-

resented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1830 and VGAM1831

[48149] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3512(VGR3512) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48150] VGR3512 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3512 gene was detected is described hereinabove with reference to Figs. 6-15.

[48151] VGR3512 gene encodes VGR3512 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48152] VGR3512 precursor RNA folds spatially, forming VGR3512 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3512 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3512 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48153] VGR3512 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1833 precursor RNA and VGAM1834 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48154] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1833 RNA and VGAM1834 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[48155] VGAM1833 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1833 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1833 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1833 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48156] VGAM1834 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1834 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1834 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1834 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48157] It is appreciated that a function of VGR3512 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3512 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3512 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3512 gene: VGAM1833 host target protein and VGAM1834 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1833 and VGAM1834

[48158] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3513(VGR3513) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48159] VGR3513 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3513 gene was detected is described hereinabove with reference to Figs. 6-15.

[48160] VGR3513 gene encodes VGR3513 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48161] VGR3513 precursor RNA folds spatially, forming VGR3513 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3513 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3513 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48162] VGR3513 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1835 precursor RNA and VGAM1836 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48163] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1835 RNA and VGAM1836 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48164] VGAM1835 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1835 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1835 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1835 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48165] VGAM1836 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1836 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1836 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1836 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48166] It is appreciated that a function of VGR3513 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3513 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3513 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3513 gene: VGAM1835 host target protein and VGAM1836 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1835 and VGAM1836

[48167] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3514(VGR3514) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48168] VGR3514 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3514 gene was detected is described hereinabove with reference to Figs. 6-15.

[48169] VGR3514 gene encodes VGR3514 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48170] VGR3514 precursor RNA folds spatially, forming VGR3514 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3514 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3514 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48171] VGR3514 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1840 precursor RNA, VGAM1841 precursor RNA and VGAM1842 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48172] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1840 RNA, VGAM1841 RNA and VGAM1842 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48173] VGAM1840 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1840 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1840 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1840 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48174] VGAM1841 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1841 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1841 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1841 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48175] VGAM1842 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1842 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1842 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1842 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48176] It is appreciated that a function of VGR3514 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3514 gene include diagnosis, prevention and treatment of viral infection by Pepper ringspot virus. Specific functions, and accordingly utilities, of VGR3514 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3514 gene: VGAM1840 host target protein, VGAM1841 host target protein and VGAM1842 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1840, VGAM1841 and VGAM1842

[48177] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3515(VGR3515) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48178] VGR3515 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3515 gene was detected is described hereinabove with reference to Figs. 6-15.

[48179] VGR3515 gene encodes VGR3515 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48180] VGR3515 precursor RNA folds spatially, forming VGR3515 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3515 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3515 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48181] VGR3515 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1844 precursor RNA and VGAM1845 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48182] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1844 RNA and VGAM1845 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48183] VGAM1844 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1844 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1844 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1844 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48184] VGAM1845 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1845 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1845 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1845 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48185] It is appreciated that a function of VGR3515 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3515 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3515 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3515 gene: VGAM1844 host target protein and VGAM1845 host target

protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1844 and VGAM1845

[48186] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3516(VGR3516) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48187] VGR3516 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3516 gene was detected is described hereinabove with reference to Figs. 6-15.

[48188] VGR3516 gene encodes VGR3516 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48189] VGR3516 precursor RNA folds spatially, forming VGR3516 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3516 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3516 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48190] VGR3516 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1848 precursor RNA and VGAM1849 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48191] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1848 RNA and VGAM1849 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48192] VGAM1848 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1848 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1848 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1848 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48193] VGAM1849 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1849 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1849 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1849 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48194] It is appreciated that a function of VGR3516 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3516 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3516 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3516 gene: VGAM1848 host target protein and VGAM1849 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1848 and VGAM1849

[48195] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3517(VGR3517) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48196] VGR3517 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3517 gene was detected is described hereinabove with reference to Figs. 6-15.

[48197] VGR3517 gene encodes VGR3517 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48198] VGR3517 precursor RNA folds spatially, forming VGR3517 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3517 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3517 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48199] VGR3517 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1850 precursor RNA, VGAM1851 precursor RNA and VGAM1852 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48200] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1850 RNA, VGAM1851 RNA and VGAM1852 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48201] VGAM1850 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1850 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1850 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1850 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48202] VGAM1851 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1851 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1851 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1851 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48203] VGAM1852 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1852 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1852 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1852 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48204] It is appreciated that a function of VGR3517 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3517 gene include diagnosis, prevention and treatment of viral infection by Simian type D virus 1. Specific functions, and accordingly utilities, of VGR3517 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3517 gene: VGAM1850 host target protein, VGAM1851 host target protein and VGAM1852 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1850, VGAM1851 and

VGAM1852

[48205] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3518(VGR3518) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48206] VGR3518 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3518 gene was detected is described hereinabove with reference to Figs. 6-15.

[48207] VGR3518 gene encodes VGR3518 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48208] VGR3518 precursor RNA folds spatially, forming VGR3518 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3518 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3518 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48209] VGR3518 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1853 precursor RNA, VGAM1854 precursor RNA and VGAM1855 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48210] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1853 RNA, VGAM1854 RNA and VGAM1855 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48211] VGAM1853 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1853 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1853 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1853 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48212] VGAM1854 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1854 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1854 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1854 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48213] VGAM1855 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1855 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1855 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1855 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48214] It is appreciated that a function of VGR3518 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3518 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3518 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3518 gene: VGAM1853 host target protein,

VGAM1854 host target protein and VGAM1855 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1853, VGAM1854 and VGAM1855

[48215] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3519(VGR3519) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48216] VGR3519 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3519 gene was detected is described hereinabove with reference to Figs. 6-15.

[48217] VGR3519 gene encodes VGR3519 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48218] VGR3519 precursor RNA folds spatially, forming VGR3519

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3519 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3519 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48219] VGR3519 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1856 precursor RNA, VGAM1857 precursor RNA and VGAM1858 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48220] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1856

RNA, VGAM1857 RNA and VGAM1858 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48221] VGAM1856 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1856 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1856 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1856 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48222] VGAM1857 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1857 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1857 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1857 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48223] VGAM1858 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1858 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1858 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1858 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48224] It is appreciated that a function of VGR3519 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3519 gene include diagnosis, prevention and treatment of viral infection by Marburg virus. Specific functions, and accordingly utilities,

of VGR3519 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3519 gene: VGAM1856 host target protein, VGAM1857 host target protein and VGAM1858 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1856, VGAM1857 and VGAM1858

[48225] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3520(VGR3520) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48226] VGR3520 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3520 gene was detected is described hereinabove with reference to Figs.

6-15.

[48227] VGR3520 gene encodes VGR3520 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48228] VGR3520 precursor RNA folds spatially, forming VGR3520 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3520 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3520 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48229] VGR3520 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1860 precursor RNA, VGAM1861 precursor RNA and VGAM1862 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA

segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48230] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1860 RNA, VGAM1861 RNA and VGAM1862 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48231] VGAM1860 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1860 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1860 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1860 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48232] VGAM1861 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1861 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1861 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1861 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48233] VGAM1862 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1862 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1862 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1862 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48234] It is appreciated that a function of VGR3520 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3520 gene include diagnosis, prevention and treatment of viral infection by Murine type C retrovirus. Specific functions, and accordingly utilities, of VGR3520 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3520 gene: VGAM1860 host target protein, VGAM1861 host target protein and VGAM1862 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1860, VGAM1861 and VGAM1862

[48235] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3521(VGR3521) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[48236] VGR3521 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3521 gene was detected is described hereinabove with reference to Figs. 6-15.

[48237] VGR3521 gene encodes VGR3521 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48238] VGR3521 precursor RNA folds spatially, forming VGR3521 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3521 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3521 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48239] VGR3521 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM pre-

cursor RNAs, VGAM1863 precursor RNA, VGAM1864 precursor RNA, VGAM1865 precursor RNA and VGAM1866 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48240] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1863 RNA, VGAM1864 RNA, VGAM1865 RNA and VGAM1866 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48241] VGAM1863 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1863 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1863 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1863 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48242] VGAM1864 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1864 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1864 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1864 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48243] VGAM1865 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1865 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1865 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1865 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48244] VGAM1866 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM1866 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1866 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM1866 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48245] It is appreciated that a function of VGR3521 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3521 gene include diagnosis, prevention and treatment of viral infection by

Murine osteosarcoma virus. Specific functions, and accordingly utilities, of VGR3521 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3521 gene: VGAM1863 host target protein, VGAM1864 host target protein, VGAM1865 host target protein and VGAM1866 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1863, VGAM1864, VGAM1865 and VGAM1866

[48246] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3522(VGR3522) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48247] VGR3522 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3522 gene was detected is described hereinabove with reference to Figs. 6-15.

[48248] VGR3522 gene encodes VGR3522 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48249] VGR3522 precursor RNA folds spatially, forming VGR3522 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3522 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3522 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48250] VGR3522 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1867 precursor RNA, VGAM1868 precursor RNA and VGAM1869 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2

PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48251] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1867 RNA, VGAM1868 RNA and VGAM1869 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48252] VGAM1867 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1867 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1867 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1867 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48253] VGAM1868 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1868 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1868 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1868 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48254] VGAM1869 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1869 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1869 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1869 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[48255] It is appreciated that a function of VGR3522 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3522 gene include diagnosis, prevention and treatment of viral infection by Banana mild mosaic virus. Specific functions, and accordingly utilities, of VGR3522 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3522 gene: VGAM1867 host target protein, VGAM1868 host target protein and VGAM1869 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1867, VGAM1868 and VGAM1869

[48256] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3523(VGR3523) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48257] VGR3523 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3523 gene was detected is described hereinabove with reference to Figs. 6-15.

[48258] VGR3523 gene encodes VGR3523 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48259] VGR3523 precursor RNA folds spatially, forming VGR3523 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3523 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3523 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48260] VGR3523 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1870 precursor RNA, VGAM1871 precursor RNA and VGAM1872 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48261] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1870 RNA, VGAM1871 RNA and VGAM1872 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48262] VGAM1870 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1870 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1870 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1870 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48263] VGAM1871 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1871 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1871 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1871 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48264] VGAM1872 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1872 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1872 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1872 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48265] It is appreciated that a function of VGR3523 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3523 gene include diagnosis, prevention and treatment of viral infection by Rana tigrina ranavirus. Specific functions, and accordingly utilities, of VGR3523 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3523 gene: VGAM1870 host target protein, VGAM1871 host target protein and VGAM1872 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1870, VGAM1871 and VGAM1872

[48266] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3524(VGR3524) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48267] VGR3524 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3524 gene was detected is described hereinabove with reference to Figs. 6-15.

[48268] VGR3524 gene encodes VGR3524 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48269] VGR3524 precursor RNA folds spatially, forming VGR3524 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3524 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3524 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48270] VGR3524 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1873 precursor RNA, VGAM1874 precursor RNA and VGAM1875 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48271] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1873 RNA, VGAM1874 RNA and VGAM1875 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48272] VGAM1873 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1873 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1873 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1873 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48273] VGAM1874 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1874 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1874 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1874 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48274] VGAM1875 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1875 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1875 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1875 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48275] It is appreciated that a function of VGR3524 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3524 gene include diagnosis, prevention and treatment of viral infection by Ribgrass mosaic virus. Specific functions, and accordingly utilities, of VGR3524 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3524 gene: VGAM1873 host target protein, VGAM1874 host target protein and VGAM1875 host target protein, herein

schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1873, VGAM1874 and VGAM1875

[48276] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3525(VGR3525) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48277] VGR3525 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3525 gene was detected is described hereinabove with reference to Figs. 6-15.

[48278] VGR3525 gene encodes VGR3525 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48279] VGR3525 precursor RNA folds spatially, forming VGR3525 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3525 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3525 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48280] VGR3525 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1878 precursor RNA, VGAM1879 precursor RNA and VGAM1880 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48281] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1878 RNA, VGAM1879 RNA and VGAM1880 RNA respectively,

herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48282] VGAM1878 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1878 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1878 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1878 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48283] VGAM1879 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1879 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1879 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1879 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48284] VGAM1880 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1880 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1880 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1880 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48285] It is appreciated that a function of VGR3525 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3525 gene include diagnosis, prevention and treatment of viral infection by Turnip vein-clearing virus. Specific functions, and accordingly utilities, of VGR3525 gene, herein designated VGR

GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3525 gene: VGAM1878 host target protein, VGAM1879 host target protein and VGAM1880 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1878, VGAM1879 and VGAM1880

[48286] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3526(VGR3526) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48287] VGR3526 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3526 gene was detected is described hereinabove with reference to Figs. 6-15.

[48288] VGR3526 gene encodes VGR3526 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48289] VGR3526 precursor RNA folds spatially, forming VGR3526 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3526 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3526 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48290] VGR3526 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1881 precursor RNA, VGAM1882 precursor RNA and VGAM1883 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig.

8.

[48291] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1881 RNA, VGAM1882 RNA and VGAM1883 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48292] VGAM1881 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1881 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1881 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1881 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48293] VGAM1882 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1882 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1882 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1882 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48294] VGAM1883 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1883 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1883 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1883 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48295] It is appreciated that a function of VGR3526 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3526 gene include diagnosis, prevention and treatment of viral infection by Crucifer tobamovirus. Specific functions, and accordingly utilities, of VGR3526 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3526 gene: VGAM1881 host target protein, VGAM1882 host target protein and VGAM1883 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1881, VGAM1882 and VGAM1883

[48296] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3527(VGR3527) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48297] VGR3527 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3527 gene was detected is described hereinabove with reference to Figs. 6-15.

[48298] VGR3527 gene encodes VGR3527 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48299] VGR3527 precursor RNA folds spatially, forming VGR3527 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3527 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3527 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48300] VGR3527 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1884 precursor RNA and VGAM1885

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48301] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1884 RNA and VGAM1885 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48302] VGAM1884 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1884 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1884 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1884 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[48303] VGAM1885 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1885 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1885 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1885 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48304] It is appreciated that a function of VGR3527 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3527 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus B. Specific functions, and accordingly utilities, of VGR3527 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3527 gene:

VGAM1884 host target protein and VGAM1885 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1884 and VGAM1885

[48305] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3528(VGR3528) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48306] VGR3528 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3528 gene was detected is described hereinabove with reference to Figs. 6-15.

[48307] VGR3528 gene encodes VGR3528 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48308] VGR3528 precursor RNA folds spatially, forming VGR3528

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3528 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3528 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48309] VGR3528 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1887 precursor RNA and VGAM1888 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48310] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1887 RNA and VGAM1888 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48311] VGAM1887 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1887 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1887 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1887 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48312] VGAM1888 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1888 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1888 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1888 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48313] It is appreciated that a function of VGR3528 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3528 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3528 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3528 gene: VGAM1887 host target protein and VGAM1888 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1887 and VGAM1888

[48314] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3529(VGR3529) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48315] VGR3529 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3529 gene was detected is described hereinabove with reference to Figs. 6-15.

[48316] VGR3529 gene encodes VGR3529 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48317] VGR3529 precursor RNA folds spatially, forming VGR3529 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3529 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3529 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[48318] VGR3529 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1890 precursor RNA and VGAM1891 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48319] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1890 RNA and VGAM1891 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48320] VGAM1890 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1890 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1890 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1890 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48321] VGAM1891 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1891 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1891 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1891 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48322] It is appreciated that a function of VGR3529 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3529 gene include diagnosis, prevention and treatment of viral infection by

African swine fever virus. Specific functions, and accordingly utilities, of VGR3529 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3529 gene: VGAM1890 host target protein and VGAM1891 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1890 and VGAM1891

[48323] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3530(VGR3530) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48324] VGR3530 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3530 gene was detected is described hereinabove with reference to Figs.

6-15.

[48325] VGR3530 gene encodes VGR3530 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48326] VGR3530 precursor RNA folds spatially, forming VGR3530 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3530 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3530 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48327] VGR3530 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1892 precursor RNA and VGAM1893 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[48328] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1892 RNA and VGAM1893 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48329] VGAM1892 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1892 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1892 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1892 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48330] VGAM1893 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1893 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1893 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1893 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48331] It is appreciated that a function of VGR3530 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3530 gene include diagnosis, prevention and treatment of viral infection by Gibbon ape leukemia virus. Specific functions, and accordingly utilities, of VGR3530 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3530 gene: VGAM1892 host target protein and VGAM1893 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these

host target genes is elaborated hereinabove with reference to VGAM1892 and VGAM1893

[48332] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3531(VGR3531) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48333] VGR3531 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3531 gene was detected is described hereinabove with reference to Figs. 6-15.

[48334] VGR3531 gene encodes VGR3531 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48335] VGR3531 precursor RNA folds spatially, forming VGR3531 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3531 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3531 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48336] VGR3531 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1894 precursor RNA, VGAM1895 precursor RNA and VGAM1896 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48337] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1894 RNA, VGAM1895 RNA and VGAM1896 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48338] VGAM1894 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1894 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1894 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1894 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48339] VGAM1895 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1895 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1895 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1895 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[48340] VGAM1896 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1896 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1896 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1896 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48341] It is appreciated that a function of VGR3531 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3531 gene include diagnosis, prevention and treatment of viral infection by Ovine adenovirus 7. Specific functions, and accordingly utilities, of VGR3531 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3531 gene:

VGAM1894 host target protein, VGAM1895 host target protein and VGAM1896 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1894, VGAM1895 and VGAM1896

[48342] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3532(VGR3532) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48343] VGR3532 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3532 gene was detected is described hereinabove with reference to Figs. 6-15.

[48344] VGR3532 gene encodes VGR3532 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48345] VGR3532 precursor RNA folds spatially, forming VGR3532 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3532 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3532 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48346] VGR3532 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1897 precursor RNA and VGAM1898 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48347] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1897

RNA and VGAM1898 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48348] VGAM1897 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1897 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1897 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1897 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48349] VGAM1898 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1898 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1898 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1898 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48350] It is appreciated that a function of VGR3532 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3532 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3532 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3532 gene: VGAM1897 host target protein and VGAM1898 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1897 and VGAM1898

[48351] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3533(VGR3533) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48352] VGR3533 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3533 gene was detected is described hereinabove with reference to Figs. 6-15.

[48353] VGR3533 gene encodes VGR3533 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48354] VGR3533 precursor RNA folds spatially, forming VGR3533 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3533 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3533 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48355] VGR3533 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1901 precursor RNA and VGAM1902 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48356] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1901 RNA and VGAM1902 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48357] VGAM1901 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1901 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1901 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1901 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48358] VGAM1902 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1902 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1902 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1902 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48359] It is appreciated that a function of VGR3533 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3533 gene include

diagnosis, prevention and treatment of viral infection by Swinepox virus. Specific functions, and accordingly utilities, of VGR3533 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3533 gene: VGAM1901 host target protein and VGAM1902 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1901 and VGAM1902

[48360] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3534(VGR3534) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48361] VGR3534 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3534 gene was

detected is described hereinabove with reference to Figs. 6-15.

[48362] VGR3534 gene encodes VGR3534 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48363] VGR3534 precursor RNA folds spatially, forming VGR3534 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3534 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3534 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48364] VGR3534 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1909 precursor RNA and VGAM1910 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48365] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1909 RNA and VGAM1910 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48366] VGAM1909 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1909 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1909 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1909 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48367] VGAM1910 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1910 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1910 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1910 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48368] It is appreciated that a function of VGR3534 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3534 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3534 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3534 gene: VGAM1909 host target protein and VGAM1910 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM

HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1909 and VGAM1910

[48369] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3535(VGR3535) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48370] VGR3535 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3535 gene was detected is described hereinabove with reference to Figs. 6-15.

[48371] VGR3535 gene encodes VGR3535 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48372] VGR3535 precursor RNA folds spatially, forming VGR3535 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3535 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3535 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48373] VGR3535 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1913 precursor RNA and VGAM1914 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48374] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1913 RNA and VGAM1914 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48375] VGAM1913 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1913 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1913 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1913 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48376] VGAM1914 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1914 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1914 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1914 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[48377] It is appreciated that a function of VGR3535 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3535 gene include diagnosis, prevention and treatment of viral infection by Yaba-like disease virus. Specific functions, and accordingly utilities, of VGR3535 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3535 gene: VGAM1913 host target protein and VGAM1914 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1913 and VGAM1914

[48378] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3536(VGR3536) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[48379] VGR3536 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3536 gene was detected is described hereinabove with reference to Figs. 6-15.

[48380] VGR3536 gene encodes VGR3536 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48381] VGR3536 precursor RNA folds spatially, forming VGR3536 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3536 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3536 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48382] VGR3536 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1915 precursor RNA, VGAM1916 precursor RNA and VGAM1917 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48383] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1915 RNA, VGAM1916 RNA and VGAM1917 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48384] VGAM1915 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1915 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1915 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1915 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48385] VGAM1916 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1916 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1916 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1916 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48386] VGAM1917 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1917 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1917 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1917 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48387] It is appreciated that a function of VGR3536 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3536 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3536 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3536 gene: VGAM1915 host target protein, VGAM1916 host target protein and VGAM1917 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1915, VGAM1916 and VGAM1917

[48388] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3537(VGR3537) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48389] VGR3537 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3537 gene was detected is described hereinabove with reference to Figs. 6-15.

[48390] VGR3537 gene encodes VGR3537 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48391] VGR3537 precursor RNA folds spatially, forming VGR3537 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3537 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3537 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48392] VGR3537 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1920 precursor RNA, VGAM1921 precursor RNA and VGAM1922 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48393] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1920 RNA, VGAM1921 RNA and VGAM1922 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48394] VGAM1920 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1920 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1920 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1920 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48395] VGAM1921 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1921 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1921 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1921 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48396] VGAM1922 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1922 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1922 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1922 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48397] It is appreciated that a function of VGR3537 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3537 gene include diagnosis, prevention and treatment of viral infection by Petunia vein clearing virus. Specific functions, and accordingly utilities, of VGR3537 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3537 gene: VGAM1920 host target protein, VGAM1921 host target protein and VGAM1922 host target protein, herein schematically represented by VGAM1 HOST TARGET PRO-

TEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1920, VGAM1921 and VGAM1922

[48398] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3538(VGR3538) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48399] VGR3538 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3538 gene was detected is described hereinabove with reference to Figs. 6-15.

[48400] VGR3538 gene encodes VGR3538 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48401] VGR3538 precursor RNA folds spatially, forming VGR3538 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3538 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3538 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48402] VGR3538 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1923 precursor RNA and VGAM1924 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48403] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1923 RNA and VGAM1924 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[48404] VGAM1923 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1923 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1923 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1923 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48405] VGAM1924 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1924 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1924 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1924 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48406] It is appreciated that a function of VGR3538 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3538 gene include diagnosis, prevention and treatment of viral infection by B19 virus. Specific functions, and accordingly utilities, of VGR3538 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3538 gene: VGAM1923 host target protein and VGAM1924 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1923 and VGAM1924

[48407] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3539(VGR3539) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48408] VGR3539 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3539 gene was detected is described hereinabove with reference to Figs. 6-15.

[48409] VGR3539 gene encodes VGR3539 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48410] VGR3539 precursor RNA folds spatially, forming VGR3539 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3539 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3539 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48411] VGR3539 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1927 precursor RNA and VGAM1928 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48412] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1927 RNA and VGAM1928 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48413] VGAM1927 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1927 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1927 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM1927 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48414] VGAM1928 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1928 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1928 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1928 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48415] It is appreciated that a function of VGR3539 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3539 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3539 gene, herein designated

VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3539 gene: VGAM1927 host target protein and VGAM1928 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1927 and VGAM1928

[48416] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3540(VGR3540) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48417] VGR3540 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3540 gene was detected is described hereinabove with reference to Figs. 6-15.

[48418] VGR3540 gene encodes VGR3540 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48419] VGR3540 precursor RNA folds spatially, forming VGR3540 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3540 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3540 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48420] VGR3540 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1939 precursor RNA and VGAM1940 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48421] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1939 RNA and VGAM1940 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48422] VGAM1939 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1939 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1939 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1939 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48423] VGAM1940 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1940 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1940 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1940 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48424] It is appreciated that a function of VGR3540 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3540 gene include diagnosis, prevention and treatment of viral infection by Acute bee paralysis virus. Specific functions, and accordingly utilities, of VGR3540 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3540 gene: VGAM1939 host target protein and VGAM1940 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1939 and VGAM1940

[48425] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3541(VGR3541) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48426] VGR3541 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3541 gene was detected is described hereinabove with reference to Figs. 6-15.

[48427] VGR3541 gene encodes VGR3541 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48428] VGR3541 precursor RNA folds spatially, forming VGR3541 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3541 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3541 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48429] VGR3541 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1941 precursor RNA and VGAM1942 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48430] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1941 RNA and VGAM1942 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48431] VGAM1941 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1941 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1941 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1941 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48432] VGAM1942 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1942 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1942 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1942 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48433] It is appreciated that a function of VGR3541 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3541 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3541 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3541 gene: VGAM1941 host target protein and VGAM1942 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1941 and VGAM1942

[48434] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3542(VGR3542) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48435] VGR3542 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3542 gene was detected is described hereinabove with reference to Figs. 6-15.

[48436] VGR3542 gene encodes VGR3542 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48437] VGR3542 precursor RNA folds spatially, forming VGR3542 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3542 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3542 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48438] VGR3542 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1944 precursor RNA and VGAM1945 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48439] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1944 RNA and VGAM1945 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48440] VGAM1944 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1944 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1944 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1944 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48441] VGAM1945 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1945 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1945 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1945 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48442] It is appreciated that a function of VGR3542 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3542 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3542 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3542 gene: VGAM1944 host target protein and

VGAM1945 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1944 and VGAM1945

[48443] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3543(VGR3543) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48444] VGR3543 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3543 gene was detected is described hereinabove with reference to Figs. 6-15.

[48445] VGR3543 gene encodes VGR3543 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48446] VGR3543 precursor RNA folds spatially, forming VGR3543 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3543 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3543 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48447] VGR3543 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1946 precursor RNA and VGAM1947 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48448] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1946 RNA and VGAM1947 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48449] VGAM1946 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1946 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1946 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1946 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48450] VGAM1947 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1947 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1947 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM1947 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48451] It is appreciated that a function of VGR3543 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3543 gene include diagnosis, prevention and treatment of viral infection by Parvovirus H1. Specific functions, and accordingly utilities, of VGR3543 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3543 gene: VGAM1946 host target protein and VGAM1947 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1946 and VGAM1947

[48452] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3544(VGR3544) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48453] VGR3544 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3544 gene was detected is described hereinabove with reference to Figs. 6-15.

[48454] VGR3544 gene encodes VGR3544 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48455] VGR3544 precursor RNA folds spatially, forming VGR3544 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3544 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3544 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48456] VGR3544 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1948 precursor RNA and VGAM1949 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48457] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1948 RNA and VGAM1949 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48458] VGAM1948 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1948 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1948 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1948 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48459] VGAM1949 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1949 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1949 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1949 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48460] It is appreciated that a function of VGR3544 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3544 gene include diagnosis, prevention and treatment of viral infection by Rabbit fibroma virus. Specific functions, and accordingly

utilities, of VGR3544 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3544 gene: VGAM1948 host target protein and VGAM1949 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1948 and VGAM1949

[48461] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3545(VGR3545) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48462] VGR3545 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3545 gene was detected is described hereinabove with reference to Figs. 6-15.

[48463] VGR3545 gene encodes VGR3545 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48464] VGR3545 precursor RNA folds spatially, forming VGR3545 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3545 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3545 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48465] VGR3545 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1950 precursor RNA, VGAM1951 precursor RNA and VGAM1951 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig.

8.

[48466] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1950 RNA, VGAM1951 RNA and VGAM1951 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48467] VGAM1950 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1950 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1950 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1950 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48468] VGAM1951 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1951 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1951 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1951 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48469] VGAM1951 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1951 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1951 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1951 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48470] It is appreciated that a function of VGR3545 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3545 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3545 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3545 gene: VGAM1950 host target protein, VGAM1951 host target protein and VGAM1951 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1950, VGAM1951 and VGAM1951

[48471] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3546(VGR3546) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48472] VGR3546 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3546 gene was detected is described hereinabove with reference to Figs. 6-15.

[48473] VGR3546 gene encodes VGR3546 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48474] VGR3546 precursor RNA folds spatially, forming VGR3546 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3546 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3546 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48475] VGR3546 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1952 precursor RNA and VGAM1953

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48476] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1952 RNA and VGAM1953 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48477] VGAM1952 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1952 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1952 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1952 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[48478] VGAM1953 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1953 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1953 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1953 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48479] It is appreciated that a function of VGR3546 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3546 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 4. Specific functions, and accordingly utilities, of VGR3546 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3546 gene:

VGAM1952 host target protein and VGAM1953 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1952 and VGAM1953

[48480] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3547(VGR3547) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48481] VGR3547 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3547 gene was detected is described hereinabove with reference to Figs. 6-15.

[48482] VGR3547 gene encodes VGR3547 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48483] VGR3547 precursor RNA folds spatially, forming VGR3547

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3547 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3547 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48484] VGR3547 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1954 precursor RNA and VGAM1955 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48485] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1954 RNA and VGAM1955 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48486] VGAM1954 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1954 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1954 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1954 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48487] VGAM1955 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1955 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1955 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM1955 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48488] It is appreciated that a function of VGR3547 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3547 gene include diagnosis, prevention and treatment of viral infection by Leek yellow stripe potyvirus. Specific functions, and accordingly utilities, of VGR3547 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3547 gene: VGAM1954 host target protein and VGAM1955 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1954 and VGAM1955

[48489] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3548(VGR3548) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48490] VGR3548 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3548 gene was detected is described hereinabove with reference to Figs. 6-15.

[48491] VGR3548 gene encodes VGR3548 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48492] VGR3548 precursor RNA folds spatially, forming VGR3548 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3548 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3548 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[48493] VGR3548 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1958 precursor RNA and VGAM1959 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48494] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1958 RNA and VGAM1959 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48495] VGAM1958 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1958 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1958 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1958 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48496] VGAM1959 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1959 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1959 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1959 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48497] It is appreciated that a function of VGR3548 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3548 gene include diagnosis, prevention and treatment of viral infection by

Human herpesvirus 8. Specific functions, and accordingly utilities, of VGR3548 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3548 gene: VGAM1958 host target protein and VGAM1959 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1958 and VGAM1959

[48498] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3549(VGR3549) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48499] VGR3549 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3549 gene was detected is described hereinabove with reference to Figs.

6-15.

[48500] VGR3549 gene encodes VGR3549 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48501] VGR3549 precursor RNA folds spatially, forming VGR3549 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3549 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3549 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48502] VGR3549 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1964 precursor RNA, VGAM1965 precursor RNA and VGAM1966 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA

segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48503] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1964 RNA, VGAM1965 RNA and VGAM1966 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48504] VGAM1964 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1964 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1964 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1964 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48505] VGAM1965 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1965 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1965 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1965 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48506] VGAM1966 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1966 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1966 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1966 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48507] It is appreciated that a function of VGR3549 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3549 gene include diagnosis, prevention and treatment of viral infection by Zaire Ebola virus. Specific functions, and accordingly utilities, of VGR3549 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3549 gene: VGAM1964 host target protein, VGAM1965 host target protein and VGAM1966 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1964, VGAM1965 and VGAM1966

[48508] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3550(VGR3550) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[48509] VGR3550 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3550 gene was detected is described hereinabove with reference to Figs. 6-15.

[48510] VGR3550 gene encodes VGR3550 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48511] VGR3550 precursor RNA folds spatially, forming VGR3550 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3550 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3550 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48512] VGR3550 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM1967 precursor RNA and VGAM1968 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48513] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1967 RNA and VGAM1968 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48514] VGAM1967 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1967 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1967 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1967 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48515] VGAM1968 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1968 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1968 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1968 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48516] It is appreciated that a function of VGR3550 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3550 gene include diagnosis, prevention and treatment of viral infection by West Nile virus. Specific functions, and accordingly utilities, of VGR3550 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3550 gene: VGAM1967 host target protein and VGAM1968 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1967 and VGAM1968

[48517] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3551(VGR3551) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48518] VGR3551 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3551 gene was detected is described hereinabove with reference to Figs. 6-15.

[48519] VGR3551 gene encodes VGR3551 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48520] VGR3551 precursor RNA folds spatially, forming VGR3551 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3551 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3551 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48521] VGR3551 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1970 precursor RNA and VGAM1971 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48522] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1970

RNA and VGAM1971 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48523] VGAM1970 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1970 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1970 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1970 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48524] VGAM1971 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1971 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM1971 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1971 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48525] It is appreciated that a function of VGR3551 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3551 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 8. Specific functions, and accordingly utilities, of VGR3551 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3551 gene: VGAM1970 host target protein and VGAM1971 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1970 and VGAM1971

[48526] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3552(VGR3552) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48527] VGR3552 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3552 gene was detected is described hereinabove with reference to Figs. 6-15.

[48528] VGR3552 gene encodes VGR3552 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48529] VGR3552 precursor RNA folds spatially, forming VGR3552 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3552 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3552 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48530] VGR3552 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1980 precursor RNA and VGAM1981 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48531] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1980 RNA and VGAM1981 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48532] VGAM1980 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1980 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1980 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1980 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48533] VGAM1981 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1981 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1981 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1981 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48534] It is appreciated that a function of VGR3552 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3552 gene include

diagnosis, prevention and treatment of viral infection by Sheeppox virus. Specific functions, and accordingly utilities, of VGR3552 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3552 gene: VGAM1980 host target protein and VGAM1981 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1980 and VGAM1981

[48535] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3553(VGR3553) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48536] VGR3553 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3553 gene was

detected is described hereinabove with reference to Figs. 6-15.

[48537] VGR3553 gene encodes VGR3553 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48538] VGR3553 precursor RNA folds spatially, forming VGR3553 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3553 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3553 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48539] VGR3553 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1982 precursor RNA and VGAM1983 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48540] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1982 RNA and VGAM1983 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48541] VGAM1982 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1982 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1982 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1982 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48542] VGAM1983 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM1983 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1983 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1983 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48543] It is appreciated that a function of VGR3553 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3553 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3553 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3553 gene: VGAM1982 host target protein and VGAM1983 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN re-

spectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1982 and VGAM1983

[48544] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3554(VGR3554) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48545] VGR3554 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3554 gene was detected is described hereinabove with reference to Figs. 6-15.

[48546] VGR3554 gene encodes VGR3554 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48547] VGR3554 precursor RNA folds spatially, forming VGR3554 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3554 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3554 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48548] VGR3554 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM1984 precursor RNA, VGAM1985 precursor RNA and VGAM1986 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48549] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1984 RNA, VGAM1985 RNA and VGAM1986 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM

RNAs corresponding to VGAM RNA of Fig. 8.

[48550] VGAM1984 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1984 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1984 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1984 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48551] VGAM1985 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1985 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1985 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1985 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48552] VGAM1986 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM1986 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1986 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM1986 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48553] It is appreciated that a function of VGR3554 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3554 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3554 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3554 gene: VGAM1984 host target protein, VGAM1985 host target protein and VGAM1986 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1984, VGAM1985 and VGAM1986

[48554] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3555(VGR3555) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48555] VGR3555 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3555 gene was detected is described hereinabove with reference to Figs. 6-15.

[48556] VGR3555 gene encodes VGR3555 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[48557] VGR3555 precursor RNA folds spatially, forming VGR3555 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3555 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3555 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48558] VGR3555 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1987 precursor RNA and VGAM1988 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48559] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM1987 RNA and VGAM1988 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48560] VGAM1987 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1987 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1987 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1987 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48561] VGAM1988 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1988 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1988 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1988 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48562] It is appreciated that a function of VGR3555 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3555 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3555 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3555 gene: VGAM1987 host target protein and VGAM1988 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1987 and VGAM1988

[48563] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3556(VGR3556) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48564] VGR3556 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3556 gene was detected is described hereinabove with reference to Figs. 6-15.

[48565] VGR3556 gene encodes VGR3556 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48566] VGR3556 precursor RNA folds spatially, forming VGR3556 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3556 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3556 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48567] VGR3556 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1996 precursor RNA and VGAM1997 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48568] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1996 RNA and VGAM1997 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48569] VGAM1996 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1996 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1996 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1996 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48570] VGAM1997 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1997 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1997 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1997 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48571] It is appreciated that a function of VGR3556 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3556 gene include diagnosis, prevention and treatment of viral infection by Triatoma virus. Specific functions, and accordingly utilities, of VGR3556 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3556 gene: VGAM1996 host target protein and VGAM1997 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1996 and VGAM1997

[48572] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3557(VGR3557) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48573] VGR3557 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3557 gene was detected is described hereinabove with reference to Figs. 6-15.

[48574] VGR3557 gene encodes VGR3557 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48575] VGR3557 precursor RNA folds spatially, forming VGR3557 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3557 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3557 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48576] VGR3557 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM1998 precursor RNA and VGAM1999 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively,

each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48577] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM1998 RNA and VGAM1999 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48578] VGAM1998 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM1998 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1998 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM1998 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48579] VGAM1999 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM1999 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM1999 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM1999 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48580] It is appreciated that a function of VGR3557 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3557 gene include diagnosis, prevention and treatment of viral infection by Sulfolobus virus SIRV-1. Specific functions, and accordingly utilities, of VGR3557 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3557 gene: VGAM1998 host target protein and VGAM1999 host target protein, herein schematically represented by

VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM1998 and VGAM1999

[48581] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3558(VGR3558) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48582] VGR3558 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3558 gene was detected is described hereinabove with reference to Figs. 6-15.

[48583] VGR3558 gene encodes VGR3558 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48584] VGR3558 precursor RNA folds spatially, forming VGR3558 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3558 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3558 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48585] VGR3558 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2002 precursor RNA and VGAM2003 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48586] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2002 RNA and VGAM2003 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[48587] VGAM2002 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2002 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2002 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2002 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48588] VGAM2003 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2003 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2003 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2003 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48589] It is appreciated that a function of VGR3558 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3558 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3558 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3558 gene: VGAM2002 host target protein and VGAM2003 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2002 and VGAM2003

[48590] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3559(VGR3559) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48591] VGR3559 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3559 gene was detected is described hereinabove with reference to Figs. 6-15.

[48592] VGR3559 gene encodes VGR3559 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48593] VGR3559 precursor RNA folds spatially, forming VGR3559 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3559 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3559 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48594] VGR3559 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2004 precursor RNA and VGAM2005 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48595] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2004 RNA and VGAM2005 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48596] VGAM2004 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2004 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2004 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM2004 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48597] VGAM2005 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2005 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2005 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2005 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48598] It is appreciated that a function of VGR3559 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3559 gene include diagnosis, prevention and treatment of viral infection by Macaca mulatta rhadinovirus. Specific functions, and accordingly utilities, of VGR3559 gene, herein designated

VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3559 gene: VGAM2004 host target protein and VGAM2005 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2004 and VGAM2005

[48599] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3560(VGR3560) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48600] VGR3560 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3560 gene was detected is described hereinabove with reference to Figs. 6-15.

[48601] VGR3560 gene encodes VGR3560 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48602] VGR3560 precursor RNA folds spatially, forming VGR3560 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3560 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3560 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48603] VGR3560 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2008 precursor RNA, VGAM2009 precursor RNA and VGAM2010 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48604] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2008 RNA, VGAM2009 RNA and VGAM2010 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48605] VGAM2008 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2008 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2008 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2008 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48606] VGAM2009 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2009 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2009 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2009 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48607] VGAM2010 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2010 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2010 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2010 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48608] It is appreciated that a function of VGR3560 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3560 gene include diagnosis, prevention and treatment of viral infection by Horseradish curly top virus. Specific functions, and accordingly utilities, of VGR3560 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3560 gene: VGAM2008 host target protein, VGAM2009 host target protein and VGAM2010 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2008, VGAM2009 and VGAM2010

[48609] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3561(VGR3561) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48610] VGR3561 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3561 gene was detected is described hereinabove with reference to Figs. 6-15.

[48611] VGR3561 gene encodes VGR3561 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48612] VGR3561 precursor RNA folds spatially, forming VGR3561 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3561 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3561 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48613] VGR3561 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2012 precursor RNA and VGAM2013 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48614] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2012 RNA and VGAM2013 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48615] VGAM2012 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2012 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2012 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2012 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48616] VGAM2013 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2013 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2013 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2013 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48617] It is appreciated that a function of VGR3561 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3561 gene include diagnosis, prevention and treatment of viral infection by Rat cytomegalovirus. Specific functions, and accordingly utilities, of VGR3561 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3561 gene: VGAM2012 host target protein and VGAM2013 host target

protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2012 and VGAM2013

[48618] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3562(VGR3562) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48619] VGR3562 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3562 gene was detected is described hereinabove with reference to Figs. 6-15.

[48620] VGR3562 gene encodes VGR3562 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48621] VGR3562 precursor RNA folds spatially, forming VGR3562 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3562 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3562 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48622] VGR3562 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2018 precursor RNA and VGAM2019 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48623] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2018 RNA and VGAM2019 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48624] VGAM2018 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2018 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2018 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2018 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48625] VGAM2019 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2019 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2019 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2019 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48626] It is appreciated that a function of VGR3562 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3562 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3562 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3562 gene: VGAM2018 host target protein and VGAM2019 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2018 and VGAM2019

[48627] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3563(VGR3563) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48628] VGR3563 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3563 gene was detected is described hereinabove with reference to Figs. 6-15.

[48629] VGR3563 gene encodes VGR3563 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48630] VGR3563 precursor RNA folds spatially, forming VGR3563 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3563 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3563 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48631] VGR3563 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2022 precursor RNA and VGAM2023 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48632] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2022 RNA and VGAM2023 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48633] VGAM2022 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2022 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2022 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2022 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48634] VGAM2023 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2023 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2023 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2023 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48635] It is appreciated that a function of VGR3563 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3563 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly

utilities, of VGR3563 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3563 gene: VGAM2022 host target protein and VGAM2023 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2022 and VGAM2023

[48636] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3564(VGR3564) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48637] VGR3564 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3564 gene was detected is described hereinabove with reference to Figs. 6-15.

[48638] VGR3564 gene encodes VGR3564 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48639] VGR3564 precursor RNA folds spatially, forming VGR3564 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3564 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3564 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48640] VGR3564 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2024 precursor RNA and VGAM2025 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48641] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2024 RNA and VGAM2025 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48642] VGAM2024 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2024 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2024 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2024 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48643] VGAM2025 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2025 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2025 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2025 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48644] It is appreciated that a function of VGR3564 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3564 gene include diagnosis, prevention and treatment of viral infection by Ground squirrel hepatitis virus. Specific functions, and accordingly utilities, of VGR3564 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3564 gene: VGAM2024 host target protein and VGAM2025 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with refer-

ence to VGAM2024 and VGAM2025

[48645] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3565(VGR3565) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48646] VGR3565 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3565 gene was detected is described hereinabove with reference to Figs. 6-15.

[48647] VGR3565 gene encodes VGR3565 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48648] VGR3565 precursor RNA folds spatially, forming VGR3565 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3565 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3565 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48649] VGR3565 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2027 precursor RNA and VGAM2028 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48650] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2027 RNA and VGAM2028 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48651] VGAM2027 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2027 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2027 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2027 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48652] VGAM2028 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2028 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2028 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2028 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48653] It is appreciated that a function of VGR3565 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3565 gene include diagnosis, prevention and treatment of viral infection by Tupaia paramyxovirus. Specific functions, and accordingly utilities, of VGR3565 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3565 gene: VGAM2027 host target protein and VGAM2028 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2027 and VGAM2028

[48654] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3566(VGR3566) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48655] VGR3566 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3566 gene was detected is described hereinabove with reference to Figs. 6-15.

[48656] VGR3566 gene encodes VGR3566 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48657] VGR3566 precursor RNA folds spatially, forming VGR3566 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3566 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3566 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48658] VGR3566 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2029 precursor RNA and VGAM2030

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48659] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2029 RNA and VGAM2030 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48660] VGAM2029 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2029 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2029 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2029 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[48661] VGAM2030 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2030 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2030 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2030 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48662] It is appreciated that a function of VGR3566 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3566 gene include diagnosis, prevention and treatment of viral infection by Lumpy skin disease virus. Specific functions, and accordingly utilities, of VGR3566 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3566

gene: VGAM2029 host target protein and VGAM2030 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2029 and VGAM2030

[48663] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3567(VGR3567) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48664] VGR3567 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3567 gene was detected is described hereinabove with reference to Figs. 6-15.

[48665] VGR3567 gene encodes VGR3567 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48666] VGR3567 precursor RNA folds spatially, forming VGR3567

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3567 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3567 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48667] VGR3567 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2035 precursor RNA, VGAM2036 precursor RNA and VGAM2037 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48668] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2035

RNA, VGAM2036 RNA and VGAM2037 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48669] VGAM2035 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2035 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2035 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2035 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48670] VGAM2036 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2036 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2036 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2036 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48671] VGAM2037 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2037 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2037 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2037 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48672] It is appreciated that a function of VGR3567 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3567 gene include diagnosis, prevention and treatment of viral infection by Simian-Human immunodeficiency virus. Specific func-

tions, and accordingly utilities, of VGR3567 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3567 gene: VGAM2035 host target protein, VGAM2036 host target protein and VGAM2037 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2035, VGAM2036 and VGAM2037

[48673] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3568(VGR3568) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48674] VGR3568 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3568 gene was detected is described hereinabove with reference to Figs.

6-15.

[48675] VGR3568 gene encodes VGR3568 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48676] VGR3568 precursor RNA folds spatially, forming VGR3568 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3568 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3568 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48677] VGR3568 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2040 precursor RNA and VGAM2041 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[48678] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2040 RNA and VGAM2041 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48679] VGAM2040 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2040 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2040 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2040 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48680] VGAM2041 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2041 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2041 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2041 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48681] It is appreciated that a function of VGR3568 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3568 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3568 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3568 gene: VGAM2040 host target protein and VGAM2041 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM2040 and VGAM2041

[48682] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3569(VGR3569) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48683] VGR3569 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3569 gene was detected is described hereinabove with reference to Figs. 6-15.

[48684] VGR3569 gene encodes VGR3569 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48685] VGR3569 precursor RNA folds spatially, forming VGR3569 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3569 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3569 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48686] VGR3569 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2043 precursor RNA, VGAM2044 precursor RNA and VGAM2045 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48687] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2043 RNA, VGAM2044 RNA and VGAM2045 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48688] VGAM2043 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2043 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2043 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2043 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48689] VGAM2044 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2044 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2044 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2044 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[48690] VGAM2045 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2045 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2045 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2045 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48691] It is appreciated that a function of VGR3569 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3569 gene include diagnosis, prevention and treatment of viral infection by Infectious spleen and kidney necrosis virus. Specific functions, and accordingly utilities, of VGR3569 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like clus-

ter of VGR3569 gene: VGAM2043 host target protein, VGAM2044 host target protein and VGAM2045 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2043, VGAM2044 and VGAM2045

[48692] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3570(VGR3570) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48693] VGR3570 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3570 gene was detected is described hereinabove with reference to Figs. 6-15.

[48694] VGR3570 gene encodes VGR3570 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48695] VGR3570 precursor RNA folds spatially, forming VGR3570 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3570 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3570 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48696] VGR3570 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 4 separate VGAM precursor RNAs, VGAM2047 precursor RNA, VGAM2048 precursor RNA, VGAM2049 precursor RNA and VGAM2050 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR and VGAM4 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48697] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2047 RNA, VGAM2048 RNA, VGAM2049 RNA and VGAM2050 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA and VGAM4 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48698] VGAM2047 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2047 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2047 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2047 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48699] VGAM2048 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2048 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2048 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2048 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48700] VGAM2049 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2049 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2049 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2049 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48701] VGAM2050 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2050 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2050 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2050 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48702] It is appreciated that a function of VGR3570 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3570 gene include diagnosis, prevention and treatment of viral infection by Hepatitis GB virus A. Specific functions, and accordingly utilities, of VGR3570 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3570 gene: VGAM2047 host target protein, VGAM2048 host target protein, VGAM2049 host target protein and VGAM2050 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TAR-

GET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2047, VGAM2048, VGAM2049 and VGAM2050

[48703] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3571(VGR3571) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48704] VGR3571 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3571 gene was detected is described hereinabove with reference to Figs. 6-15.

[48705] VGR3571 gene encodes VGR3571 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48706] VGR3571 precursor RNA folds spatially, forming VGR3571 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3571 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3571 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48707] VGR3571 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2055 precursor RNA and VGAM2056 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48708] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2055 RNA and VGAM2056 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48709] VGAM2055 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2055 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2055 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2055 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48710] VGAM2056 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2056 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2056 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2056 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[48711] It is appreciated that a function of VGR3571 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3571 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus D. Specific functions, and accordingly utilities, of VGR3571 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3571 gene: VGAM2055 host target protein and VGAM2056 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2055 and VGAM2056

[48712] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3572(VGR3572) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[48713] VGR3572 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3572 gene was detected is described hereinabove with reference to Figs. 6-15.

[48714] VGR3572 gene encodes VGR3572 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48715] VGR3572 precursor RNA folds spatially, forming VGR3572 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3572 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3572 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48716] VGR3572 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2059 precursor RNA, VGAM2060 precursor RNA and VGAM2061 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48717] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2059 RNA, VGAM2060 RNA and VGAM2061 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48718] VGAM2059 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2059 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2059 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM2059 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48719] VGAM2060 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2060 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2060 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2060 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48720] VGAM2061 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2061 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2061 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2061 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48721] It is appreciated that a function of VGR3572 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3572 gene include diagnosis, prevention and treatment of viral infection by Rhopalosiphum padi virus. Specific functions, and accordingly utilities, of VGR3572 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3572 gene: VGAM2059 host target protein, VGAM2060 host target protein and VGAM2061 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2059, VGAM2060 and VGAM2061

[48722] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3573(VGR3573) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48723] VGR3573 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3573 gene was detected is described hereinabove with reference to Figs. 6-15.

[48724] VGR3573 gene encodes VGR3573 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48725] VGR3573 precursor RNA folds spatially, forming VGR3573 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3573 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3573 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48726] VGR3573 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2062 precursor RNA and VGAM2063 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48727] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2062 RNA and VGAM2063 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48728] VGAM2062 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2062 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2062 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2062 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48729] VGAM2063 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2063 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2063 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2063 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48730] It is appreciated that a function of VGR3573 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3573 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3573 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3573 gene: VGAM2062 host target protein and VGAM2063 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2062 and VGAM2063

[48731] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3574(VGR3574) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48732] VGR3574 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3574 gene was detected is described hereinabove with reference to Figs. 6-15.

[48733] VGR3574 gene encodes VGR3574 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48734] VGR3574 precursor RNA folds spatially, forming VGR3574 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3574 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3574 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48735] VGR3574 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2064 precursor RNA, VGAM2065 precursor RNA, VGAM2065 precursor RNA, VGAM2065 precursor RNA, VGAM2065 precursor RNA, VGAM2065 pre-

cursor RNA, VGAM2065 precursor RNA and VGAM2065 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48736] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2064 RNA, VGAM2065 RNA, VGAM2065 RNA, VGAM2065 RNA, VGAM2065 RNA, VGAM2065 RNA, VGAM2065 RNA and VGAM2065 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48737] VGAM2064 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2064 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2064 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2064 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48738] VGAM2065 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48739] VGAM2065 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48740] VGAM2065 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48741] VGAM2065 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48742] VGAM2065 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48743] VGAM2065 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48744] VGAM2065 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48745] It is appreciated that a function of VGR3574 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3574 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3574 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3574 gene: VGAM2064 host target protein, VGAM2065 host target protein, VGAM2065 host target protein, VGAM2065 host target protein, VGAM2065 host target protein, VGAM2065 host target protein, VGAM2065 host target protein and VGAM2065 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2064, VGAM2065, VGAM2065, VGAM2065, VGAM2065, VGAM2065, VGAM2065 and VGAM2065

[48746] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3575(VGR3575) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48747] VGR3575 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3575 gene was detected is described hereinabove with reference to Figs. 6-15.

[48748] VGR3575 gene encodes VGR3575 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48749] VGR3575 precursor RNA folds spatially, forming VGR3575 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3575 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3575 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[48750] VGR3575 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2065 precursor RNA, VGAM2065 precursor RNA and VGAM2065 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48751] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2065 RNA, VGAM2065 RNA and VGAM2065 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48752] VGAM2065 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48753] VGAM2065 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48754] VGAM2065 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2065 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2065 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2065 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48755] It is appreciated that a function of VGR3575 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3575 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3575 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3575 gene: VGAM2065 host target protein, VGAM2065 host target protein and VGAM2065 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated

hereinabove with reference to VGAM2065, VGAM2065 and VGAM2065

[48756] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3576(VGR3576) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48757] VGR3576 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3576 gene was detected is described hereinabove with reference to Figs. 6-15.

[48758] VGR3576 gene encodes VGR3576 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48759] VGR3576 precursor RNA folds spatially, forming VGR3576 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3576 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3576 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48760] VGR3576 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2068 precursor RNA and VGAM2069 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48761] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2068 RNA and VGAM2069 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48762] VGAM2068 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2068 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2068 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2068 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48763] VGAM2069 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2069 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2069 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2069 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48764] It is appreciated that a function of VGR3576 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3576 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3576 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3576 gene: VGAM2068 host target protein and VGAM2069 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2068 and VGAM2069

[48765] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3577(VGR3577) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[48766] VGR3577 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3577 gene was detected is described hereinabove with reference to Figs. 6-15.

[48767] VGR3577 gene encodes VGR3577 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48768] VGR3577 precursor RNA folds spatially, forming VGR3577 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3577 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3577 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48769] VGR3577 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM2070 precursor RNA and VGAM2071 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48770] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2070 RNA and VGAM2071 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48771] VGAM2070 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2070 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2070 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2070 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48772] VGAM2071 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2071 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2071 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2071 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48773] It is appreciated that a function of VGR3577 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3577 gene include diagnosis, prevention and treatment of viral infection by Y73 sarcoma virus. Specific functions, and accordingly utilities, of VGR3577 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3577 gene: VGAM2070 host target protein and VGAM2071 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2070 and VGAM2071

[48774] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3578(VGR3578) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48775] VGR3578 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3578 gene was detected is described hereinabove with reference to Figs. 6-15.

[48776] VGR3578 gene encodes VGR3578 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48777] VGR3578 precursor RNA folds spatially, forming VGR3578 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3578 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3578 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48778] VGR3578 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2072 precursor RNA and VGAM2073 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48779] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2072

RNA and VGAM2073 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48780] VGAM2072 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2072 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2072 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2072 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48781] VGAM2073 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2073 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2073 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2073 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48782] It is appreciated that a function of VGR3578 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3578 gene include diagnosis, prevention and treatment of viral infection by Equine infectious anemia virus. Specific functions, and accordingly utilities, of VGR3578 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3578 gene: VGAM2072 host target protein and VGAM2073 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2072 and VGAM2073

[48783] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3579(VGR3579) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48784] VGR3579 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3579 gene was detected is described hereinabove with reference to Figs. 6-15.

[48785] VGR3579 gene encodes VGR3579 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48786] VGR3579 precursor RNA folds spatially, forming VGR3579 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3579 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3579 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48787] VGR3579 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2076 precursor RNA, VGAM2077 precursor RNA and VGAM2078 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48788] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2076 RNA, VGAM2077 RNA and VGAM2078 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48789] VGAM2076 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2076 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2076 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2076 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48790] VGAM2077 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2077 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2077 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2077 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48791] VGAM2078 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2078 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2078 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2078 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48792] It is appreciated that a function of VGR3579 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3579 gene include diagnosis, prevention and treatment of viral infection by Soil-borne cereal mosaic virus. Specific functions, and accordingly utilities, of VGR3579 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3579 gene: VGAM2076 host target protein, VGAM2077 host target protein and VGAM2078 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN

respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2076, VGAM2077 and VGAM2078

[48793] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3580(VGR3580) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48794] VGR3580 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3580 gene was detected is described hereinabove with reference to Figs. 6-15.

[48795] VGR3580 gene encodes VGR3580 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48796] VGR3580 precursor RNA folds spatially, forming VGR3580 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3580 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3580 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48797] VGR3580 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2085 precursor RNA and VGAM2086 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48798] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2085 RNA and VGAM2086 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48799] VGAM2085 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2085 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2085 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48800] VGAM2086 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2086 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2086 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2086 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[48801] It is appreciated that a function of VGR3580 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3580 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 70. Specific functions, and accordingly utilities, of VGR3580 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3580 gene: VGAM2085 host target protein and VGAM2086 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2085 and VGAM2086

[48802] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3581(VGR3581) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[48803] VGR3581 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3581 gene was detected is described hereinabove with reference to Figs. 6-15.

[48804] VGR3581 gene encodes VGR3581 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48805] VGR3581 precursor RNA folds spatially, forming VGR3581 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3581 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3581 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48806] VGR3581 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2091 precursor RNA and VGAM2092 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48807] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2091 RNA and VGAM2092 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48808] VGAM2091 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2091 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2091 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2091 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48809] VGAM2092 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2092 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2092 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2092 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48810] It is appreciated that a function of VGR3581 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3581 gene include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3581 gene, herein designated VGR GENE, correlate with, and may be deduced from, the iden-

tity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3581 gene: VGAM2091 host target protein and VGAM2092 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2091 and VGAM2092

[48811] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3582(VGR3582) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48812] VGR3582 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3582 gene was detected is described hereinabove with reference to Figs. 6-15.

[48813] VGR3582 gene encodes VGR3582 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[48814] VGR3582 precursor RNA folds spatially, forming VGR3582 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3582 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3582 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48815] VGR3582 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2103 precursor RNA and VGAM2104 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48816] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM2103 RNA and VGAM2104 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48817] VGAM2103 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2103 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2103 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2103 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48818] VGAM2104 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2104 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2104 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2104 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48819] It is appreciated that a function of VGR3582 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3582 gene include diagnosis, prevention and treatment of viral infection by Myxoma virus. Specific functions, and accordingly utilities, of VGR3582 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3582 gene: VGAM2103 host target protein and VGAM2104 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2103 and VGAM2104

[48820] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3583(VGR3583) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48821] VGR3583 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3583 gene was detected is described hereinabove with reference to Figs. 6-15.

[48822] VGR3583 gene encodes VGR3583 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48823] VGR3583 precursor RNA folds spatially, forming VGR3583 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3583 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3583 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48824] VGR3583 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2105 precursor RNA and VGAM2106 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48825] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2105 RNA and VGAM2106 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48826] VGAM2105 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2105 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2105 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2105 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48827] VGAM2106 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2106 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2106 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2106 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48828] It is appreciated that a function of VGR3583 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3583 gene include diagnosis, prevention and treatment of viral infection by Beet yellows virus. Specific functions, and accordingly utilities, of VGR3583 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3583 gene: VGAM2105 host target protein and VGAM2106 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2105 and VGAM2106

[48829] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3584(VGR3584) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48830] VGR3584 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3584 gene was detected is described hereinabove with reference to Figs. 6-15.

[48831] VGR3584 gene encodes VGR3584 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48832] VGR3584 precursor RNA folds spatially, forming VGR3584 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3584 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3584 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48833] VGR3584 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2110 precursor RNA, VGAM2111 precursor RNA, VGAM2112 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 pre-

cursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48834] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2110 RNA, VGAM2111 RNA, VGAM2112 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48835] VGAM2110 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2110 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2110 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2110 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48836] VGAM2111 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2111 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2111 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2111 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48837] VGAM2112 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2112 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2112 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2112 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48838] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48839] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48840] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48841] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48842] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48843] It is appreciated that a function of VGR3584 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3584 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3584 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3584 gene: VGAM2110 host target protein, VGAM2111 host target protein, VGAM2112 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2110, VGAM2111, VGAM2112, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48844] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3585(VGR3585) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48845] VGR3585 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3585 gene was detected is described hereinabove with reference to Figs. 6-15.

[48846] VGR3585 gene encodes VGR3585 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48847] VGR3585 precursor RNA folds spatially, forming VGR3585 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3585 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3585 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[48848] VGR3585 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48849] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48850] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48851] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48852] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48853] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48854] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48855] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48856] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48857] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48858] It is appreciated that a function of VGR3585 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3585 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3585 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3585 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function

of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48859] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3586(VGR3586) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48860] VGR3586 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3586 gene was detected is described hereinabove with reference to Figs. 6-15.

[48861] VGR3586 gene encodes VGR3586 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48862] VGR3586 precursor RNA folds spatially, forming VGR3586 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3586 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3586 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48863] VGR3586 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48864] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48865] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48866] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48867] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48868] VGAM2113 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48869] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48870] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48871] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[48872] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48873] It is appreciated that a function of VGR3586 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3586 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3586 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3586 gene:

VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48874] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3587(VGR3587) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48875] VGR3587 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3587 gene was detected is described hereinabove with reference to Figs.

6-15.

[48876] VGR3587 gene encodes VGR3587 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48877] VGR3587 precursor RNA folds spatially, forming VGR3587 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3587 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3587 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48878] VGR3587 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48879] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48880] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48881] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48882] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48883] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48884] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48885] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48886] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48887] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48888] It is appreciated that a function of VGR3587 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3587 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3587 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3587 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48889] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3588(VGR3588) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48890] VGR3588 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3588 gene was detected is described hereinabove with reference to Figs. 6-15.

[48891] VGR3588 gene encodes VGR3588 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48892] VGR3588 precursor RNA folds spatially, forming VGR3588 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3588 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3588 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48893] VGR3588 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48894] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48895] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48896] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[48897] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48898] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48899] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48900] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48901] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48902] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48903] It is appreciated that a function of VGR3588 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3588 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3588 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3588 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113,

VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48904] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3589(VGR3589) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48905] VGR3589 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3589 gene was detected is described hereinabove with reference to Figs. 6-15.

[48906] VGR3589 gene encodes VGR3589 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48907] VGR3589 precursor RNA folds spatially, forming VGR3589 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3589 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3589 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48908] VGR3589 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48909] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113

RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48910] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48911] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48912] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48913] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48914] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48915] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48916] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48917] VGAM2113 RNA, herein schematically represented by

VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48918] It is appreciated that a function of VGR3589 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3589 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3589 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3589 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host

target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48919] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3590(VGR3590) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48920] VGR3590 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3590 gene was detected is described hereinabove with reference to Figs. 6-15.

[48921] VGR3590 gene encodes VGR3590 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48922] VGR3590 precursor RNA folds spatially, forming VGR3590 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3590 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3590 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48923] VGR3590 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR,

VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48924] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48925] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48926] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48927] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48928] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48929] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48930] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48931] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48932] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[48933] It is appreciated that a function of VGR3590 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3590 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3590 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3590 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48934] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3591(VGR3591) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48935] VGR3591 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3591 gene was detected is described hereinabove with reference to Figs. 6-15.

[48936] VGR3591 gene encodes VGR3591 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48937] VGR3591 precursor RNA folds spatially, forming VGR3591 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3591 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3591 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48938] VGR3591 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48939] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically repre-

sented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48940] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48941] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48942] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48943] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48944] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48945] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48946] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48947] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48948] It is appreciated that a function of VGR3591 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3591 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3591 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3591 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically rep-

resented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48949] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3592(VGR3592) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48950] VGR3592 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3592 gene was detected is described hereinabove with reference to Figs. 6-15.

[48951] VGR3592 gene encodes VGR3592 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48952] VGR3592 precursor RNA folds spatially, forming VGR3592

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3592 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3592 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48953] VGR3592 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to

VGAM PRECURSOR RNA of Fig. 8.

[48954] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48955] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48956] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48957] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[48958] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48959] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48960] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48961] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48962] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48963] It is appreciated that a function of VGR3592 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3592 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3592 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of

the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3592 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48964] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3593(VGR3593) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48965] VGR3593 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3593 gene was detected is described hereinabove with reference to Figs. 6-15.

[48966] VGR3593 gene encodes VGR3593 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48967] VGR3593 precursor RNA folds spatially, forming VGR3593 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3593 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3593 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48968] VGR3593 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 pre-

cursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-CURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRE-CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48969] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48970] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48971] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48972] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48973] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48974] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48975] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48976] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48977] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48978] It is appreciated that a function of VGR3593 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3593 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3593 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3593 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48979] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3594(VGR3594) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48980] VGR3594 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3594 gene was detected is described hereinabove with reference to Figs. 6-15.

[48981] VGR3594 gene encodes VGR3594 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48982] VGR3594 precursor RNA folds spatially, forming VGR3594 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3594 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3594 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[48983] VGR3594 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48984] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[48985] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[48986] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[48987] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[48988] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[48989] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[48990] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[48991] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[48992] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[48993] It is appreciated that a function of VGR3594 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3594 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3594 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3594 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function

of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[48994] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3595(VGR3595) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[48995] VGR3595 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3595 gene was detected is described hereinabove with reference to Figs. 6-15.

[48996] VGR3595 gene encodes VGR3595 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[48997] VGR3595 precursor RNA folds spatially, forming VGR3595 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3595 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3595 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[48998] VGR3595 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[48999] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49000] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49001] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49002] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49003] VGAM2113 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49004] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49005] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49006] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[49007] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49008] It is appreciated that a function of VGR3595 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3595 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3595 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3595 gene:

VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49009] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3596(VGR3596) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49010] VGR3596 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3596 gene was detected is described hereinabove with reference to Figs.

6-15.

[49011] VGR3596 gene encodes VGR3596 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49012] VGR3596 precursor RNA folds spatially, forming VGR3596 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3596 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3596 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49013] VGR3596 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-CURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRE-CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49014] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49015] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49016] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49017] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49018] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49019] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49020] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49021] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49022] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49023] It is appreciated that a function of VGR3596 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3596 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3596 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3596 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49024] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3597(VGR3597) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49025] VGR3597 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3597 gene was detected is described hereinabove with reference to Figs. 6-15.

[49026] VGR3597 gene encodes VGR3597 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49027] VGR3597 precursor RNA folds spatially, forming VGR3597 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3597 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3597 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49028] VGR3597 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49029] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49030] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49031] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[49032] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49033] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49034] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49035] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49036] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49037] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49038] It is appreciated that a function of VGR3597 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3597 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3597 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3597 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113,

VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49039] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3598(VGR3598) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49040] VGR3598 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3598 gene was detected is described hereinabove with reference to Figs. 6-15.

[49041] VGR3598 gene encodes VGR3598 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49042] VGR3598 precursor RNA folds spatially, forming VGR3598 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3598 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3598 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49043] VGR3598 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49044] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113

RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49045] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49046] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49047] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49048] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49049] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49050] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49051] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49052] VGAM2113 RNA, herein schematically represented by

VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49053] It is appreciated that a function of VGR3598 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3598 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3598 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3598 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host

target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49054] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3599(VGR3599) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49055] VGR3599 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3599 gene was detected is described hereinabove with reference to Figs. 6-15.

[49056] VGR3599 gene encodes VGR3599 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49057] VGR3599 precursor RNA folds spatially, forming VGR3599 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3599 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3599 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49058] VGR3599 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR,

VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49059] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49060] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49061] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49062] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49063] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49064] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49065] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49066] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49067] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49068] It is appreciated that a function of VGR3599 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3599 gene include diagnosis, prevention and treatment of viral infection by

Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3599 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3599 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49069] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3600(VGR3600) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[49070] VGR3600 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3600 gene was detected is described hereinabove with reference to Figs. 6-15.

[49071] VGR3600 gene encodes VGR3600 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49072] VGR3600 precursor RNA folds spatially, forming VGR3600 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3600 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3600 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49073] VGR3600 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49074] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49075] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49076] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49077] VGAM2113 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49078] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49079] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49080] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[49081] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49082] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49083] It is appreciated that a function of VGR3600 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3600 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3600 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3600 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49084] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3601(VGR3601) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49085] VGR3601 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3601 gene was detected is described hereinabove with reference to Figs. 6-15.

[49086] VGR3601 gene encodes VGR3601 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49087] VGR3601 precursor RNA folds spatially, forming VGR3601 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3601 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3601 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49088] VGR3601 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49089] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and

VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49090] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49091] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49092] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49093] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49094] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49095] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49096] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49097] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49098] It is appreciated that a function of VGR3601 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3601 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3601 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3601 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and

VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49099] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3602(VGR3602) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49100] VGR3602 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3602 gene was detected is described hereinabove with reference to Figs. 6-15.

[49101] VGR3602 gene encodes VGR3602 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49102] VGR3602 precursor RNA folds spatially, forming VGR3602 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3602 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3602 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49103] VGR3602 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49104] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49105] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[49106] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49107] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49108] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49109] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49110] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49111] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49112] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49113] It is appreciated that a function of VGR3602 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3602 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3602 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3602 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49114] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3603(VGR3603) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49115] VGR3603 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3603 gene was detected is described hereinabove with reference to Figs. 6-15.

[49116] VGR3603 gene encodes VGR3603 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49117] VGR3603 precursor RNA folds spatially, forming VGR3603 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3603 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3603 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49118] VGR3603 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 pre-

cursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49119] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49120] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49121] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49122] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49123] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49124] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49125] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49126] VGAM2113 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49127] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49128] It is appreciated that a function of VGR3603 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3603 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3603 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3603 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49129] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3604(VGR3604) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49130] VGR3604 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3604 gene was detected is described hereinabove with reference to Figs. 6-15.

[49131] VGR3604 gene encodes VGR3604 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49132] VGR3604 precursor RNA folds spatially, forming VGR3604 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3604 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3604 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49133] VGR3604 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49134] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49135] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49136] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49137] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49138] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49139] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49140] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49141] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49142] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49143] It is appreciated that a function of VGR3604 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3604 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3604 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3604 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through

VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49144] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3605(VGR3605) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49145] VGR3605 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3605 gene was detected is described hereinabove with reference to Figs. 6-15.

[49146] VGR3605 gene encodes VGR3605 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49147] VGR3605 precursor RNA folds spatially, forming VGR3605 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3605 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3605 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49148] VGR3605 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49149] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49150] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49151] VGAM2113 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49152] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49153] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49154] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of

Fig. 1.

[49155] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49156] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49157] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49158] It is appreciated that a function of VGR3605 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3605 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3605 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3605 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49159] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3606(VGR3606) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49160] VGR3606 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3606 gene was

detected is described hereinabove with reference to Figs. 6-15.

[49161] VGR3606 gene encodes VGR3606 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49162] VGR3606 precursor RNA folds spatially, forming VGR3606 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3606 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3606 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49163] VGR3606 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113

precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49164] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49165] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49166] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49167] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49168] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49169] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49170] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49171] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49172] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49173] It is appreciated that a function of VGR3606 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3606 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3606 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3606 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49174] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3607(VGR3607) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49175] VGR3607 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3607 gene was detected is described hereinabove with reference to Figs. 6-15.

[49176] VGR3607 gene encodes VGR3607 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49177] VGR3607 precursor RNA folds spatially, forming VGR3607 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3607 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3607 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49178] VGR3607 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49179] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs correspond-

ing to VGAM RNA of Fig. 8.

[49180] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49181] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49182] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49183] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49184] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49185] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49186] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49187] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49188] It is appreciated that a function of VGR3607 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3607 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3607 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3607 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with

reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49189] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3608(VGR3608) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49190] VGR3608 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3608 gene was detected is described hereinabove with reference to Figs. 6-15.

[49191] VGR3608 gene encodes VGR3608 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49192] VGR3608 precursor RNA folds spatially, forming VGR3608 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3608 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3608 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49193] VGR3608 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49194] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49195] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49196] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49197] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49198] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49199] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49200] VGAM2113 RNA, herein schematically represented by

VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49201] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49202] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49203] It is appreciated that a function of VGR3608 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3608 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3608 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3608 gene: VGAM2113 host target protein, VGAM2113 host target

protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49204] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3609(VGR3609) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49205] VGR3609 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3609 gene was detected is described hereinabove with reference to Figs. 6-15.

[49206] VGR3609 gene encodes VGR3609 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49207] VGR3609 precursor RNA folds spatially, forming VGR3609 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3609 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3609 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49208] VGR3609 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRE-

CURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49209] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49210] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49211] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49212] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49213] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49214] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49215] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49216] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49217] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49218] It is appreciated that a function of VGR3609 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3609 gene include

diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3609 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3609 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49219] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3610(VGR3610) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[49220] VGR3610 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3610 gene was detected is described hereinabove with reference to Figs. 6-15.

[49221] VGR3610 gene encodes VGR3610 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49222] VGR3610 precursor RNA folds spatially, forming VGR3610 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3610 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3610 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49223] VGR3610 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49224] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49225] VGAM2113 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49226] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49227] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49228] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[49229] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49230] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49231] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49232] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49233] It is appreciated that a function of VGR3610 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3610 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3610 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3610 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and

VGAM2113

[49234] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3611(VGR3611) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49235] VGR3611 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3611 gene was detected is described hereinabove with reference to Figs. 6-15.

[49236] VGR3611 gene encodes VGR3611 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49237] VGR3611 precursor RNA folds spatially, forming VGR3611 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3611 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3611 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49238] VGR3611 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49239] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA,

VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49240] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49241] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49242] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49243] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49244] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49245] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49246] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49247] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49248] It is appreciated that a function of VGR3611 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3611 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3611 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3611 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113

host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49249] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3612(VGR3612) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49250] VGR3612 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3612 gene was detected is described hereinabove with reference to Figs. 6-15.

[49251] VGR3612 gene encodes VGR3612 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[49252] VGR3612 precursor RNA folds spatially, forming VGR3612 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3612 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3612 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49253] VGR3612 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRE-

CURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49254] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49255] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49256] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49257] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49258] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49259] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49260] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49261] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49262] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49263] It is appreciated that a function of VGR3612 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3612 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly

utilities, of VGR3612 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3612 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49264] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3613(VGR3613) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49265] VGR3613 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3613 gene was detected is described hereinabove with reference to Figs. 6-15.

[49266] VGR3613 gene encodes VGR3613 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49267] VGR3613 precursor RNA folds spatially, forming VGR3613 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3613 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3613 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49268] VGR3613 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 pre-

cursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49269] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49270] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49271] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49272] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49273] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49274] VGAM2113 RNA, herein schematically represented by

VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49275] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49276] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49277] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[49278] It is appreciated that a function of VGR3613 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3613 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3613 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3613 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49279] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3614(VGR3614) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49280] VGR3614 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3614 gene was detected is described hereinabove with reference to Figs. 6-15.

[49281] VGR3614 gene encodes VGR3614 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49282] VGR3614 precursor RNA folds spatially, forming VGR3614 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3614 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3614 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49283] VGR3614 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49284] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically repre-

sented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49285] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49286] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49287] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49288] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49289] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49290] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49291] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49292] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49293] It is appreciated that a function of VGR3614 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3614 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3614 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3614 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically rep-

resented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49294] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3615(VGR3615) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49295] VGR3615 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3615 gene was detected is described hereinabove with reference to Figs. 6-15.

[49296] VGR3615 gene encodes VGR3615 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49297] VGR3615 precursor RNA folds spatially, forming VGR3615

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3615 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3615 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49298] VGR3615 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to

VGAM PRECURSOR RNA of Fig. 8.

[49299] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49300] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49301] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49302] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of

Fig. 1.

[49303] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49304] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49305] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49306] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49307] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49308] It is appreciated that a function of VGR3615 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3615 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3615 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of

the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3615 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49309] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3616(VGR3616) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49310] VGR3616 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3616 gene was detected is described hereinabove with reference to Figs. 6-15.

[49311] VGR3616 gene encodes VGR3616 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49312] VGR3616 precursor RNA folds spatially, forming VGR3616 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3616 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3616 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49313] VGR3616 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 pre-

cursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49314] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49315] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49316] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49317] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49318] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49319] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49320] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49321] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49322] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49323] It is appreciated that a function of VGR3616 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3616 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3616 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3616 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49324] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3617(VGR3617) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49325] VGR3617 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3617 gene was detected is described hereinabove with reference to Figs. 6-15.

[49326] VGR3617 gene encodes VGR3617 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49327] VGR3617 precursor RNA folds spatially, forming VGR3617 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3617 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3617 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[49328] VGR3617 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49329] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8

RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49330] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49331] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49332] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49333] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49334] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49335] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49336] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49337] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49338] It is appreciated that a function of VGR3617 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3617 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3617 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3617 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function

of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49339] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3618(VGR3618) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49340] VGR3618 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3618 gene was detected is described hereinabove with reference to Figs. 6-15.

[49341] VGR3618 gene encodes VGR3618 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49342] VGR3618 precursor RNA folds spatially, forming VGR3618 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3618 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3618 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49343] VGR3618 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49344] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49345] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49346] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49347] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49348] VGAM2113 RNA, herein schematically represented by

VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49349] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49350] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49351] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of

Fig. 1.

[49352] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49353] It is appreciated that a function of VGR3618 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3618 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3618 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3618 gene:

VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49354] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3619(VGR3619) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49355] VGR3619 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3619 gene was detected is described hereinabove with reference to Figs.

6-15.

[49356] VGR3619 gene encodes VGR3619 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49357] VGR3619 precursor RNA folds spatially, forming VGR3619 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3619 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3619 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49358] VGR3619 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49359] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49360] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49361] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49362] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49363] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49364] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49365] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49366] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49367] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49368] It is appreciated that a function of VGR3619 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3619 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3619 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3619 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49369] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3620(VGR3620) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49370] VGR3620 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3620 gene was detected is described hereinabove with reference to Figs. 6-15.

[49371] VGR3620 gene encodes VGR3620 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49372] VGR3620 precursor RNA folds spatially, forming VGR3620 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3620 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3620 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49373] VGR3620 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49374] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49375] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49376] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[49377] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49378] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49379] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49380] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49381] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49382] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49383] It is appreciated that a function of VGR3620 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3620 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3620 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3620 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113,

VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49384] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3621(VGR3621) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49385] VGR3621 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3621 gene was detected is described hereinabove with reference to Figs. 6-15.

[49386] VGR3621 gene encodes VGR3621 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49387] VGR3621 precursor RNA folds spatially, forming VGR3621 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3621 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3621 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49388] VGR3621 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49389] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113

RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49390] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49391] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49392] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49393] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49394] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49395] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49396] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49397] VGAM2113 RNA, herein schematically represented by

VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49398] It is appreciated that a function of VGR3621 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3621 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3621 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3621 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host

target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49399] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3622(VGR3622) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49400] VGR3622 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3622 gene was detected is described hereinabove with reference to Figs. 6-15.

[49401] VGR3622 gene encodes VGR3622 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49402] VGR3622 precursor RNA folds spatially, forming VGR3622 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3622 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3622 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49403] VGR3622 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR,

VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49404] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49405] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49406] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49407] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49408] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49409] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49410] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49411] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49412] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49413] It is appreciated that a function of VGR3622 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3622 gene include diagnosis, prevention and treatment of viral infection by

Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3622 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3622 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49414] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3623(VGR3623) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[49415] VGR3623 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3623 gene was detected is described hereinabove with reference to Figs. 6-15.

[49416] VGR3623 gene encodes VGR3623 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49417] VGR3623 precursor RNA folds spatially, forming VGR3623 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3623 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3623 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49418] VGR3623 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49419] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49420] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49421] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49422] VGAM2113 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49423] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49424] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49425] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[49426] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49427] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49428] It is appreciated that a function of VGR3623 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3623 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3623 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3623 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49429] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3624(VGR3624) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49430] VGR3624 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3624 gene was detected is described hereinabove with reference to Figs. 6-15.

[49431] VGR3624 gene encodes VGR3624 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49432] VGR3624 precursor RNA folds spatially, forming VGR3624 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3624 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3624 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49433] VGR3624 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49434] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and

VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49435] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49436] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49437] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49438] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49439] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49440] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49441] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49442] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49443] It is appreciated that a function of VGR3624 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3624 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3624 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3624 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and

VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49444] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3625(VGR3625) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49445] VGR3625 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3625 gene was detected is described hereinabove with reference to Figs. 6-15.

[49446] VGR3625 gene encodes VGR3625 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49447] VGR3625 precursor RNA folds spatially, forming VGR3625 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3625 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3625 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49448] VGR3625 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49449] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49450] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[49451] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49452] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49453] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49454] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49455] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49456] VGAM2113 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49457] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49458] It is appreciated that a function of VGR3625 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3625 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3625 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3625 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49459] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3626(VGR3626) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49460] VGR3626 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3626 gene was detected is described hereinabove with reference to Figs. 6-15.

[49461] VGR3626 gene encodes VGR3626 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49462] VGR3626 precursor RNA folds spatially, forming VGR3626 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3626 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3626 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49463] VGR3626 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 pre-

cursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49464] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49465] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49466] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49467] VGAM2113 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49468] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49469] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49470] VGAM2113 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49471] VGAM2113 RNA, herein schematically represented by

VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49472] VGAM2113 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49473] It is appreciated that a function of VGR3626 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3626 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3626 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3626 gene: VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49474] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3627(VGR3627) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49475] VGR3627 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3627 gene was detected is described hereinabove with reference to Figs. 6-15.

[49476] VGR3627 gene encodes VGR3627 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49477] VGR3627 precursor RNA folds spatially, forming VGR3627 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3627 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3627 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49478] VGR3627 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA, VGAM2113 precursor RNA and VGAM2113 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49479] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA, VGAM2113 RNA and VGAM2113 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49480] VGAM2113 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49481] VGAM2113 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49482] VGAM2113 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49483] VGAM2113 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49484] VGAM2113 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2113 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2113 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49485] It is appreciated that a function of VGR3627 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3627 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3627 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3627 gene: VGAM2113 host target protein, VGAM2113 host target

protein, VGAM2113 host target protein, VGAM2113 host target protein and VGAM2113 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2113, VGAM2113, VGAM2113, VGAM2113 and VGAM2113

[49486] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3628(VGR3628) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49487] VGR3628 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3628 gene was detected is described hereinabove with reference to Figs. 6-15.

[49488] VGR3628 gene encodes VGR3628 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49489] VGR3628 precursor RNA folds spatially, forming VGR3628 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3628 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3628 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49490] VGR3628 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2118 precursor RNA, VGAM2119 precursor RNA, VGAM2119 precursor RNA, VGAM2119 precursor RNA, VGAM2119 precursor RNA, VGAM2119 precursor RNA, VGAM2119 precursor RNA and VGAM2119 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs

being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49491] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2118 RNA, VGAM2119 RNA, VGAM2119 RNA, VGAM2119 RNA, VGAM2119 RNA, VGAM2119 RNA, VGAM2119 RNA and VGAM2119 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49492] VGAM2118 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2118 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2118 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2118 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[49493] VGAM2119 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2119 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49494] VGAM2119 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2119 host target protein, herein schematically

represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49495] VGAM2119 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2119 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49496] VGAM2119 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA

into VGAM2119 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49497] VGAM2119 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2119 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49498] VGAM2119 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein

schematically represented by VGAM7 HOST TARGET RNA into VGAM2119 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49499] VGAM2119 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2119 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49500] It is appreciated that a function of VGR3628 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3628 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3628 gene, herein designated VGR GENE, cor-

relate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3628 gene: VGAM2118 host target protein, VGAM2119 host target protein, VGAM2119 host target protein, VGAM2119 host target protein, VGAM2119 host target protein, VGAM2119 host target protein, VGAM2119 host target protein and VGAM2119 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2118, VGAM2119, VGAM2119, VGAM2119, VGAM2119, VGAM2119, VGAM2119 and VGAM2119

[49501] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3629(VGR3629) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49502] VGR3629 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3629 gene was detected is described hereinabove with reference to Figs. 6-15.

[49503] VGR3629 gene encodes VGR3629 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49504] VGR3629 precursor RNA folds spatially, forming VGR3629 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3629 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3629 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49505] VGR3629 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2119 precursor RNA and VGAM2119 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49506] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2119 RNA and VGAM2119 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49507] VGAM2119 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2119 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49508] VGAM2119 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2119 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2119 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2119 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49509] It is appreciated that a function of VGR3629 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3629 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3629 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3629 gene: VGAM2119 host target protein and VGAM2119 host target

protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2119 and VGAM2119

[49510] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3630(VGR3630) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49511] VGR3630 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3630 gene was detected is described hereinabove with reference to Figs. 6-15.

[49512] VGR3630 gene encodes VGR3630 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49513] VGR3630 precursor RNA folds spatially, forming VGR3630 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3630 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3630 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49514] VGR3630 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2124 precursor RNA and VGAM2125 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49515] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2124 RNA and VGAM2125 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49516] VGAM2124 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2124 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2124 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2124 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49517] VGAM2125 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2125 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2125 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2125 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49518] It is appreciated that a function of VGR3630 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3630 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3630 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3630 gene: VGAM2124 host target protein and VGAM2125 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2124 and VGAM2125

[49519] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3631(VGR3631) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49520] VGR3631 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3631 gene was detected is described hereinabove with reference to Figs. 6-15.

[49521] VGR3631 gene encodes VGR3631 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49522] VGR3631 precursor RNA folds spatially, forming VGR3631 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3631 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3631 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49523] VGR3631 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2126 precursor RNA and VGAM2127 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49524] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2126 RNA and VGAM2127 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49525] VGAM2126 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2126 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2126 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2126 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49526] VGAM2127 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2127 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2127 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2127 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49527] It is appreciated that a function of VGR3631 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3631 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 20. Specific functions, and ac-

cordingly utilities, of VGR3631 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3631 gene: VGAM2126 host target protein and VGAM2127 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2126 and VGAM2127

[49528] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3632(VGR3632) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49529] VGR3632 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3632 gene was detected is described hereinabove with reference to Figs. 6-15.

[49530] VGR3632 gene encodes VGR3632 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49531] VGR3632 precursor RNA folds spatially, forming VGR3632 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3632 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3632 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49532] VGR3632 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2128 precursor RNA and VGAM2129 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49533] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2128 RNA and VGAM2129 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49534] VGAM2128 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2128 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2128 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2128 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49535] VGAM2129 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2129 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2129 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2129 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49536] It is appreciated that a function of VGR3632 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3632 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus A. Specific functions, and accordingly utilities, of VGR3632 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3632 gene: VGAM2128 host target protein and VGAM2129 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2128 and

VGAM2129

[49537] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3633(VGR3633) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49538] VGR3633 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3633 gene was detected is described hereinabove with reference to Figs. 6-15.

[49539] VGR3633 gene encodes VGR3633 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49540] VGR3633 precursor RNA folds spatially, forming VGR3633 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3633 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3633 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49541] VGR3633 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2130 precursor RNA and VGAM2131 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49542] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2130 RNA and VGAM2131 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49543] VGAM2130 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2130 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2130 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2130 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49544] VGAM2131 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2131 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2131 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2131 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49545] It is appreciated that a function of VGR3633 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3633 gene include diagnosis, prevention and treatment of viral infection by Citrus tristeza virus. Specific functions, and accordingly utilities, of VGR3633 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3633 gene: VGAM2130 host target protein and VGAM2131 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2130 and VGAM2131

[49546] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3634(VGR3634) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49547] VGR3634 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3634 gene was detected is described hereinabove with reference to Figs. 6-15.

[49548] VGR3634 gene encodes VGR3634 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49549] VGR3634 precursor RNA folds spatially, forming VGR3634 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3634 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3634 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49550] VGR3634 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2132 precursor RNA and VGAM2133

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49551] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2132 RNA and VGAM2133 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49552] VGAM2132 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2132 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2132 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2132 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[49553] VGAM2133 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2133 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2133 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2133 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49554] It is appreciated that a function of VGR3634 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3634 gene include diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3634 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like clus-

ter of VGR3634 gene: VGAM2132 host target protein and VGAM2133 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2132 and VGAM2133

[49555] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3635(VGR3635) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49556] VGR3635 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3635 gene was detected is described hereinabove with reference to Figs. 6-15.

[49557] VGR3635 gene encodes VGR3635 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49558] VGR3635 precursor RNA folds spatially, forming VGR3635

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3635 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3635 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49559] VGR3635 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2145 precursor RNA and VGAM2146 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49560] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2145 RNA and VGAM2146 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49561] VGAM2145 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2145 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2145 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2145 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49562] VGAM2146 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2146 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2146 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2146 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49563] It is appreciated that a function of VGR3635 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3635 gene include diagnosis, prevention and treatment of viral infection by Louping ill virus. Specific functions, and accordingly utilities, of VGR3635 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3635 gene: VGAM2145 host target protein and VGAM2146 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2145 and VGAM2146

[49564] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3636(VGR3636) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49565] VGR3636 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3636 gene was detected is described hereinabove with reference to Figs. 6-15.

[49566] VGR3636 gene encodes VGR3636 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49567] VGR3636 precursor RNA folds spatially, forming VGR3636 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3636 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3636 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[49568] VGR3636 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2149 precursor RNA and VGAM2150 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49569] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2149 RNA and VGAM2150 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49570] VGAM2149 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2149 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2149 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2149 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49571] VGAM2150 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2150 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2150 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2150 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49572] It is appreciated that a function of VGR3636 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3636 gene include diagnosis, prevention and treatment of viral infection by

Gallid herpesvirus 2. Specific functions, and accordingly utilities, of VGR3636 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3636 gene: VGAM2149 host target protein and VGAM2150 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2149 and VGAM2150

[49573] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3637(VGR3637) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49574] VGR3637 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3637 gene was detected is described hereinabove with reference to Figs.

6-15.

[49575] VGR3637 gene encodes VGR3637 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49576] VGR3637 precursor RNA folds spatially, forming VGR3637 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3637 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3637 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49577] VGR3637 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2152 precursor RNA and VGAM2153 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[49578] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2152 RNA and VGAM2153 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49579] VGAM2152 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2152 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2152 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2152 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49580] VGAM2153 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2153 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2153 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2153 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49581] It is appreciated that a function of VGR3637 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3637 gene include diagnosis, prevention and treatment of viral infection by Ictalurid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3637 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3637 gene: VGAM2152 host target protein and VGAM2153 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM2152 and VGAM2153

[49582] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3638(VGR3638) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49583] VGR3638 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3638 gene was detected is described hereinabove with reference to Figs. 6-15.

[49584] VGR3638 gene encodes VGR3638 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49585] VGR3638 precursor RNA folds spatially, forming VGR3638 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3638 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3638 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49586] VGR3638 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2155 precursor RNA, VGAM2156 precursor RNA and VGAM2157 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49587] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2155 RNA, VGAM2156 RNA and VGAM2157 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49588] VGAM2155 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2155 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2155 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2155 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49589] VGAM2156 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2156 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2156 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2156 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[49590] VGAM2157 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2157 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2157 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2157 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49591] It is appreciated that a function of VGR3638 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3638 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3638 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like clus-

ter of VGR3638 gene: VGAM2155 host target protein, VGAM2156 host target protein and VGAM2157 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2155, VGAM2156 and VGAM2157

[49592] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3639(VGR3639) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49593] VGR3639 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3639 gene was detected is described hereinabove with reference to Figs. 6-15.

[49594] VGR3639 gene encodes VGR3639 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49595] VGR3639 precursor RNA folds spatially, forming VGR3639 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3639 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3639 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49596] VGR3639 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2159 precursor RNA and VGAM2160 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49597] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2159

RNA and VGAM2160 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49598] VGAM2159 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2159 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2159 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2159 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49599] VGAM2160 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2160 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2160 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2160 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49600] It is appreciated that a function of VGR3639 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3639 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3639 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3639 gene: VGAM2159 host target protein and VGAM2160 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2159 and VGAM2160

[49601] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3640(VGR3640) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49602] VGR3640 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3640 gene was detected is described hereinabove with reference to Figs. 6-15.

[49603] VGR3640 gene encodes VGR3640 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49604] VGR3640 precursor RNA folds spatially, forming VGR3640 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3640 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3640 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49605] VGR3640 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2161 precursor RNA and VGAM2162 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49606] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2161 RNA and VGAM2162 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49607] VGAM2161 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2161 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2161 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2161 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49608] VGAM2162 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2162 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2162 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2162 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49609] It is appreciated that a function of VGR3640 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3640 gene include

diagnosis, prevention and treatment of viral infection by Reston Ebola virus. Specific functions, and accordingly utilities, of VGR3640 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3640 gene: VGAM2161 host target protein and VGAM2162 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2161 and VGAM2162

[49610] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3641(VGR3641) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49611] VGR3641 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3641 gene was

detected is described hereinabove with reference to Figs. 6-15.

[49612] VGR3641 gene encodes VGR3641 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49613] VGR3641 precursor RNA folds spatially, forming VGR3641 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3641 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3641 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49614] VGR3641 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2176 precursor RNA and VGAM2177 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49615] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2176 RNA and VGAM2177 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49616] VGAM2176 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2176 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2176 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2176 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49617] VGAM2177 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2177 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2177 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2177 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49618] It is appreciated that a function of VGR3641 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3641 gene include diagnosis, prevention and treatment of viral infection by Common chimpanzee papillomavirus 1. Specific functions, and accordingly utilities, of VGR3641 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3641 gene: VGAM2176 host target protein and VGAM2177 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM

HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2176 and VGAM2177

[49619] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3642(VGR3642) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49620] VGR3642 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3642 gene was detected is described hereinabove with reference to Figs. 6-15.

[49621] VGR3642 gene encodes VGR3642 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49622] VGR3642 precursor RNA folds spatially, forming VGR3642 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3642 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3642 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49623] VGR3642 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2191 precursor RNA and VGAM2192 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49624] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2191 RNA and VGAM2192 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49625] VGAM2191 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2191 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2191 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2191 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49626] VGAM2192 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2192 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2192 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2192 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[49627] It is appreciated that a function of VGR3642 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3642 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3642 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3642 gene: VGAM2191 host target protein and VGAM2192 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2191 and VGAM2192

[49628] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3643(VGR3643) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[49629] VGR3643 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3643 gene was detected is described hereinabove with reference to Figs. 6-15.

[49630] VGR3643 gene encodes VGR3643 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49631] VGR3643 precursor RNA folds spatially, forming VGR3643 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3643 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3643 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49632] VGR3643 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2195 precursor RNA and VGAM2196 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49633] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2195 RNA and VGAM2196 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49634] VGAM2195 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2195 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2195 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2195 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49635] VGAM2196 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2196 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2196 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2196 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49636] It is appreciated that a function of VGR3643 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3643 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3643 gene, herein designated VGR GENE, correlate with, and may be deduced from, the

identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3643 gene: VGAM2195 host target protein and VGAM2196 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2195 and VGAM2196

[49637] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3644(VGR3644) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49638] VGR3644 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3644 gene was detected is described hereinabove with reference to Figs. 6-15.

[49639] VGR3644 gene encodes VGR3644 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[49640] VGR3644 precursor RNA folds spatially, forming VGR3644 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3644 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3644 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49641] VGR3644 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2201 precursor RNA and VGAM2202 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49642] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM2201 RNA and VGAM2202 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49643] VGAM2201 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2201 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2201 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2201 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49644] VGAM2202 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2202 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2202 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2202 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49645] It is appreciated that a function of VGR3644 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3644 gene include diagnosis, prevention and treatment of viral infection by Aura virus. Specific functions, and accordingly utilities, of VGR3644 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3644 gene: VGAM2201 host target protein and VGAM2202 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2201 and VGAM2202

[49646] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3645(VGR3645) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49647] VGR3645 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3645 gene was detected is described hereinabove with reference to Figs. 6-15.

[49648] VGR3645 gene encodes VGR3645 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49649] VGR3645 precursor RNA folds spatially, forming VGR3645 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3645 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3645 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49650] VGR3645 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2212 precursor RNA and VGAM2213 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49651] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2212 RNA and VGAM2213 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49652] VGAM2212 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2212 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2212 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2212 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49653] VGAM2213 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2213 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2213 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2213 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49654] It is appreciated that a function of VGR3645 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3645 gene include diagnosis, prevention and treatment of viral infection by Bean pod mottle virus. Specific functions, and accordingly utilities, of VGR3645 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3645 gene: VGAM2212 host target protein and VGAM2213 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2212 and VGAM2213

[49655] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3646(VGR3646) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49656] VGR3646 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3646 gene was detected is described hereinabove with reference to Figs. 6-15.

[49657] VGR3646 gene encodes VGR3646 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49658] VGR3646 precursor RNA folds spatially, forming VGR3646 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3646 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3646 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49659] VGR3646 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2214 precursor RNA and VGAM2215 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively,

each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49660] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2214 RNA and VGAM2215 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49661] VGAM2214 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2214 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2214 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2214 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49662] VGAM2215 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2215 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2215 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2215 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49663] It is appreciated that a function of VGR3646 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3646 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 63. Specific functions, and accordingly utilities, of VGR3646 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3646 gene: VGAM2214 host target protein and VGAM2215 host target protein, herein schematically rep-

resented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2214 and VGAM2215

[49664] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3647(VGR3647) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49665] VGR3647 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3647 gene was detected is described hereinabove with reference to Figs. 6-15.

[49666] VGR3647 gene encodes VGR3647 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49667] VGR3647 precursor RNA folds spatially, forming VGR3647 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3647 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3647 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49668] VGR3647 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2217 precursor RNA and VGAM2218 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49669] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2217 RNA and VGAM2218 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[49670] VGAM2217 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2217 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2217 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2217 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49671] VGAM2218 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2218 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2218 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2218 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49672] It is appreciated that a function of VGR3647 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3647 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3647 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3647 gene: VGAM2217 host target protein and VGAM2218 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2217 and VGAM2218

[49673] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3648(VGR3648) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49674] VGR3648 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3648 gene was detected is described hereinabove with reference to Figs. 6-15.

[49675] VGR3648 gene encodes VGR3648 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49676] VGR3648 precursor RNA folds spatially, forming VGR3648 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3648 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3648 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49677] VGR3648 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2223 precursor RNA and VGAM2224 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49678] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2223 RNA and VGAM2224 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49679] VGAM2223 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2223 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2223 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM2223 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49680] VGAM2224 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2224 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2224 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2224 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49681] It is appreciated that a function of VGR3648 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3648 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3648 gene, herein designated

VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3648 gene: VGAM2223 host target protein and VGAM2224 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2223 and VGAM2224

[49682] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3649(VGR3649) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49683] VGR3649 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3649 gene was detected is described hereinabove with reference to Figs. 6-15.

[49684] VGR3649 gene encodes VGR3649 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49685] VGR3649 precursor RNA folds spatially, forming VGR3649 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3649 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3649 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49686] VGR3649 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2227 precursor RNA, VGAM2228 precursor RNA and VGAM2229 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49687] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2227 RNA, VGAM2228 RNA and VGAM2229 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49688] VGAM2227 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2227 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2227 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2227 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49689] VGAM2228 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2228 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2228 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2228 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49690] VGAM2229 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2229 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2229 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2229 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49691] It is appreciated that a function of VGR3649 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3649 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3649 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3649 gene: VGAM2227 host target protein, VGAM2228 host target protein and VGAM2229 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2227, VGAM2228 and VGAM2229

[49692] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3650(VGR3650) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49693] VGR3650 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3650 gene was detected is described hereinabove with reference to Figs. 6-15.

[49694] VGR3650 gene encodes VGR3650 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49695] VGR3650 precursor RNA folds spatially, forming VGR3650 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3650 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3650 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49696] VGR3650 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2232 precursor RNA and VGAM2233 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49697] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2232 RNA and VGAM2233 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49698] VGAM2232 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2232 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2232 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2232 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49699] VGAM2233 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2233 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2233 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2233 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49700] It is appreciated that a function of VGR3650 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3650 gene include diagnosis, prevention and treatment of viral infection by Olive latent virus 2. Specific functions, and accordingly utilities, of VGR3650 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3650 gene: VGAM2232 host target protein and VGAM2233 host target

protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2232 and VGAM2233

[49701] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3651(VGR3651) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49702] VGR3651 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3651 gene was detected is described hereinabove with reference to Figs. 6-15.

[49703] VGR3651 gene encodes VGR3651 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49704] VGR3651 precursor RNA folds spatially, forming VGR3651 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3651 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3651 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49705] VGR3651 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2238 precursor RNA, VGAM2239 precursor RNA and VGAM2240 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49706] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2238 RNA, VGAM2239 RNA and VGAM2240 RNA respectively,

herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49707] VGAM2238 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2238 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2238 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2238 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49708] VGAM2239 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2239 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2239 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2239 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49709] VGAM2240 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2240 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2240 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2240 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49710] It is appreciated that a function of VGR3651 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3651 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3651 gene, herein designated VGR GENE,

correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3651 gene: VGAM2238 host target protein, VGAM2239 host target protein and VGAM2240 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2238, VGAM2239 and VGAM2240

[49711] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3652(VGR3652) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49712] VGR3652 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3652 gene was detected is described hereinabove with reference to Figs. 6-15.

[49713] VGR3652 gene encodes VGR3652 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49714] VGR3652 precursor RNA folds spatially, forming VGR3652 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3652 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3652 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49715] VGR3652 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2242 precursor RNA and VGAM2243 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49716] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2242 RNA and VGAM2243 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49717] VGAM2242 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2242 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2242 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2242 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49718] VGAM2243 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2243 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2243 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2243 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49719] It is appreciated that a function of VGR3652 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3652 gene include diagnosis, prevention and treatment of viral infection by Grapevine virus A. Specific functions, and accordingly utilities, of VGR3652 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3652 gene: VGAM2242 host target protein and VGAM2243 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2242 and

VGAM2243

[49720] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3653(VGR3653) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49721] VGR3653 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3653 gene was detected is described hereinabove with reference to Figs. 6-15.

[49722] VGR3653 gene encodes VGR3653 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49723] VGR3653 precursor RNA folds spatially, forming VGR3653 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3653 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3653 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49724] VGR3653 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2255 precursor RNA and VGAM2256 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49725] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2255 RNA and VGAM2256 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49726] VGAM2255 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2255 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2255 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2255 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49727] VGAM2256 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2256 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2256 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2256 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49728] It is appreciated that a function of VGR3653 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3653 gene include diagnosis, prevention and treatment of viral infection by Zaire Ebola virus. Specific functions, and accordingly utilities, of VGR3653 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3653 gene: VGAM2255 host target protein and VGAM2256 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2255 and VGAM2256

[49729] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3654(VGR3654) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49730] VGR3654 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3654 gene was detected is described hereinabove with reference to Figs. 6-15.

[49731] VGR3654 gene encodes VGR3654 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49732] VGR3654 precursor RNA folds spatially, forming VGR3654 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3654 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3654 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49733] VGR3654 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2259 precursor RNA and VGAM2260

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49734] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2259 RNA and VGAM2260 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49735] VGAM2259 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2259 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2259 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2259 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[49736] VGAM2260 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2260 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2260 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2260 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49737] It is appreciated that a function of VGR3654 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3654 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 2. Specific functions, and accordingly utilities, of VGR3654 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3654 gene:

VGAM2259 host target protein and VGAM2260 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2259 and VGAM2260

[49738] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3655(VGR3655) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49739] VGR3655 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3655 gene was detected is described hereinabove with reference to Figs. 6-15.

[49740] VGR3655 gene encodes VGR3655 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49741] VGR3655 precursor RNA folds spatially, forming VGR3655

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3655 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3655 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49742] VGR3655 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2263 precursor RNA and VGAM2264 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49743] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2263 RNA and VGAM2264 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49744] VGAM2263 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2263 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2263 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2263 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49745] VGAM2264 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2264 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2264 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2264 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49746] It is appreciated that a function of VGR3655 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3655 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3655 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3655 gene: VGAM2263 host target protein and VGAM2264 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2263 and VGAM2264

[49747] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3656(VGR3656) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49748] VGR3656 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3656 gene was detected is described hereinabove with reference to Figs. 6-15.

[49749] VGR3656 gene encodes VGR3656 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49750] VGR3656 precursor RNA folds spatially, forming VGR3656 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3656 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3656 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[49751] VGR3656 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 6 separate VGAM precursor RNAs, VGAM2265 precursor RNA, VGAM2266 precursor RNA, VGAM2266 precursor RNA, VGAM2266 precursor RNA, VGAM2266 precursor RNA and VGAM2266 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR and VGAM6 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49752] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2265 RNA, VGAM2266 RNA, VGAM2266 RNA, VGAM2266 RNA, VGAM2266 RNA and VGAM2266 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA and VGAM6 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49753] VGAM2265 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2265 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2265 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2265 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49754] VGAM2266 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2266 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2266 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2266 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49755] VGAM2266 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2266 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2266 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2266 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49756] VGAM2266 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2266 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2266 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2266 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of

Fig. 1.

[49757] VGAM2266 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2266 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2266 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2266 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49758] VGAM2266 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2266 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2266 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2266 host target protein, herein schematically

represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49759] It is appreciated that a function of VGR3656 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3656 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3656 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3656 gene: VGAM2265 host target protein, VGAM2266 host target protein, VGAM2266 host target protein, VGAM2266 host target protein, VGAM2266 host target protein and VGAM2266 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2265, VGAM2266, VGAM2266, VGAM2266, VGAM2266 and VGAM2266

[49760] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3657(VGR3657) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49761] VGR3657 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3657 gene was detected is described hereinabove with reference to Figs. 6-15.

[49762] VGR3657 gene encodes VGR3657 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49763] VGR3657 precursor RNA folds spatially, forming VGR3657 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3657 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3657 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49764] VGR3657 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2267 precursor RNA and VGAM2268 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49765] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2267 RNA and VGAM2268 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49766] VGAM2267 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2267 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2267 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2267 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49767] VGAM2268 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2268 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2268 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2268 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49768] It is appreciated that a function of VGR3657 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3657 gene include

diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3657 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3657 gene: VGAM2267 host target protein and VGAM2268 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2267 and VGAM2268

[49769] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3658(VGR3658) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49770] VGR3658 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3658 gene was

detected is described hereinabove with reference to Figs. 6-15.

[49771] VGR3658 gene encodes VGR3658 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49772] VGR3658 precursor RNA folds spatially, forming VGR3658 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3658 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3658 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49773] VGR3658 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2269 precursor RNA, VGAM2270 precursor RNA and VGAM2271 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of

which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49774] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2269 RNA, VGAM2270 RNA and VGAM2271 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49775] VGAM2269 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2269 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2269 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2269 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49776] VGAM2270 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2270 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2270 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2270 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49777] VGAM2271 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2271 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2271 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2271 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49778] It is appreciated that a function of VGR3658 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3658 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3658 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3658 gene: VGAM2269 host target protein, VGAM2270 host target protein and VGAM2271 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2269, VGAM2270 and VGAM2271

[49779] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3659(VGR3659) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[49780] VGR3659 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3659 gene was detected is described hereinabove with reference to Figs. 6-15.

[49781] VGR3659 gene encodes VGR3659 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49782] VGR3659 precursor RNA folds spatially, forming VGR3659 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3659 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3659 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49783] VGR3659 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2275 precursor RNA, VGAM2276 precursor RNA and VGAM2277 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49784] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2275 RNA, VGAM2276 RNA and VGAM2277 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49785] VGAM2275 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2275 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2275 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM2275 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49786] VGAM2276 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2276 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2276 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2276 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49787] VGAM2277 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2277 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2277 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2277 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49788] It is appreciated that a function of VGR3659 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3659 gene include diagnosis, prevention and treatment of viral infection by Canine adenovirus. Specific functions, and accordingly utilities, of VGR3659 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3659 gene: VGAM2275 host target protein, VGAM2276 host target protein and VGAM2277 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2275, VGAM2276 and VGAM2277

[49789] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3660(VGR3660) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49790] VGR3660 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3660 gene was detected is described hereinabove with reference to Figs. 6-15.

[49791] VGR3660 gene encodes VGR3660 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49792] VGR3660 precursor RNA folds spatially, forming VGR3660 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3660 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3660 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49793] VGR3660 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2284 precursor RNA and VGAM2285 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49794] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2284 RNA and VGAM2285 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49795] VGAM2284 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2284 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2284 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2284 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49796] VGAM2285 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2285 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2285 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2285 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49797] It is appreciated that a function of VGR3660 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3660 gene include diagnosis, prevention and treatment of viral infection by Sheeppox virus. Specific functions, and accordingly utilities, of VGR3660 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3660 gene: VGAM2284 host target protein and VGAM2285 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2284 and VGAM2285

[49798] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3661(VGR3661) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49799] VGR3661 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3661 gene was detected is described hereinabove with reference to Figs. 6-15.

[49800] VGR3661 gene encodes VGR3661 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49801] VGR3661 precursor RNA folds spatially, forming VGR3661 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3661 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3661 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49802] VGR3661 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2286 precursor RNA and VGAM2287 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively,

each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49803] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2286 RNA and VGAM2287 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49804] VGAM2286 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2286 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2286 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2286 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49805] VGAM2287 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2287 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2287 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2287 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49806] It is appreciated that a function of VGR3661 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3661 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3661 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3661 gene: VGAM2286 host target protein and VGAM2287 host target protein, herein schematically represented by VGAM1 HOST

TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2286 and VGAM2287

[49807] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3662(VGR3662) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49808] VGR3662 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3662 gene was detected is described hereinabove with reference to Figs. 6-15.

[49809] VGR3662 gene encodes VGR3662 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49810] VGR3662 precursor RNA folds spatially, forming VGR3662 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3662 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3662 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49811] VGR3662 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2290 precursor RNA and VGAM2291 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49812] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2290 RNA and VGAM2291 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[49813] VGAM2290 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2290 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2290 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2290 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49814] VGAM2291 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2291 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2291 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2291 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49815] It is appreciated that a function of VGR3662 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3662 gene include diagnosis, prevention and treatment of viral infection by Walleye dermal sarcoma virus. Specific functions, and accordingly utilities, of VGR3662 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3662 gene: VGAM2290 host target protein and VGAM2291 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2290 and VGAM2291

[49816] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3663(VGR3663) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49817] VGR3663 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3663 gene was detected is described hereinabove with reference to Figs. 6-15.

[49818] VGR3663 gene encodes VGR3663 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49819] VGR3663 precursor RNA folds spatially, forming VGR3663 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3663 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3663 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49820] VGR3663 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2293 precursor RNA and VGAM2294 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49821] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2293 RNA and VGAM2294 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49822] VGAM2293 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2293 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2293 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM2293 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49823] VGAM2294 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2294 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2294 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2294 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49824] It is appreciated that a function of VGR3663 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3663 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3663 gene, herein desig-

nated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3663 gene: VGAM2293 host target protein and VGAM2294 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2293 and VGAM2294

[49825] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3664(VGR3664) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49826] VGR3664 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3664 gene was detected is described hereinabove with reference to Figs. 6-15.

[49827] VGR3664 gene encodes VGR3664 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49828] VGR3664 precursor RNA folds spatially, forming VGR3664 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3664 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3664 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49829] VGR3664 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2297 precursor RNA, VGAM2298 precursor RNA and VGAM2299 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49830] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2297 RNA, VGAM2298 RNA and VGAM2299 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49831] VGAM2297 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2297 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2297 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2297 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49832] VGAM2298 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2298 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2298 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2298 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49833] VGAM2299 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2299 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2299 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2299 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49834] It is appreciated that a function of VGR3664 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3664 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3664 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3664 gene: VGAM2297 host target protein, VGAM2298 host target protein and VGAM2299 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2297, VGAM2298 and VGAM2299

[49835] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3665(VGR3665) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49836] VGR3665 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3665 gene was detected is described hereinabove with reference to Figs. 6-15.

[49837] VGR3665 gene encodes VGR3665 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49838] VGR3665 precursor RNA folds spatially, forming VGR3665 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3665 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3665 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49839] VGR3665 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2300 precursor RNA and VGAM2301 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49840] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2300 RNA and VGAM2301 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49841] VGAM2300 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2300 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2300 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2300 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49842] VGAM2301 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2301 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2301 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2301 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49843] It is appreciated that a function of VGR3665 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3665 gene include diagnosis, prevention and treatment of viral infection by Beet virus Q. Specific functions, and accordingly utilities, of VGR3665 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3665 gene: VGAM2300 host target protein and VGAM2301 host target

protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2300 and VGAM2301

[49844] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3666(VGR3666) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49845] VGR3666 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3666 gene was detected is described hereinabove with reference to Figs. 6-15.

[49846] VGR3666 gene encodes VGR3666 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49847] VGR3666 precursor RNA folds spatially, forming VGR3666 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3666 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3666 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49848] VGR3666 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2307 precursor RNA and VGAM2308 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49849] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2307 RNA and VGAM2308 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49850] VGAM2307 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2307 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2307 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2307 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49851] VGAM2308 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2308 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2308 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2308 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49852] It is appreciated that a function of VGR3666 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3666 gene include diagnosis, prevention and treatment of viral infection by Ectromelia virus. Specific functions, and accordingly utilities, of VGR3666 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3666 gene: VGAM2307 host target protein and VGAM2308 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2307 and VGAM2308

[49853] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3667(VGR3667) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49854] VGR3667 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3667 gene was detected is described hereinabove with reference to Figs. 6-15.

[49855] VGR3667 gene encodes VGR3667 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49856] VGR3667 precursor RNA folds spatially, forming VGR3667 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3667 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3667 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49857] VGR3667 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2312 precursor RNA and VGAM2313 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49858] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2312 RNA and VGAM2313 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49859] VGAM2312 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2312 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2312 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2312 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49860] VGAM2313 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2313 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2313 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2313 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49861] It is appreciated that a function of VGR3667 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3667 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utili-

ties, of VGR3667 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3667 gene: VGAM2312 host target protein and VGAM2313 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2312 and VGAM2313

[49862] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3668(VGR3668) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49863] VGR3668 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3668 gene was detected is described hereinabove with reference to Figs. 6-15.

[49864] VGR3668 gene encodes VGR3668 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49865] VGR3668 precursor RNA folds spatially, forming VGR3668 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3668 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3668 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49866] VGR3668 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2326 precursor RNA and VGAM2327 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49867] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2326 RNA and VGAM2327 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49868] VGAM2326 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2326 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2326 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2326 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49869] VGAM2327 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2327 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2327 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2327 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49870] It is appreciated that a function of VGR3668 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3668 gene include diagnosis, prevention and treatment of viral infection by Sulfolobus virus SIRV-1. Specific functions, and accordingly utilities, of VGR3668 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3668 gene: VGAM2326 host target protein and VGAM2327 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM2326 and VGAM2327

[49871] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3669(VGR3669) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49872] VGR3669 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3669 gene was detected is described hereinabove with reference to Figs. 6-15.

[49873] VGR3669 gene encodes VGR3669 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49874] VGR3669 precursor RNA folds spatially, forming VGR3669 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3669 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3669 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49875] VGR3669 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2329 precursor RNA and VGAM2330 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49876] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2329 RNA and VGAM2330 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49877] VGAM2329 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2329 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2329 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2329 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49878] VGAM2330 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2330 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2330 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2330 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49879] It is appreciated that a function of VGR3669 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3669 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3669 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3669 gene: VGAM2329 host target protein and VGAM2330 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2329 and VGAM2330

[49880] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3670(VGR3670) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49881] VGR3670 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3670 gene was detected is described hereinabove with reference to Figs. 6-15.

[49882] VGR3670 gene encodes VGR3670 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49883] VGR3670 precursor RNA folds spatially, forming VGR3670 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3670 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3670 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49884] VGR3670 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2336 precursor RNA, VGAM2336 pre-

cursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA and VGAM2336 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49885] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA and VGAM2336 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49886] VGAM2336 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49887] VGAM2336 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49888] VGAM2336 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49889] VGAM2336 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49890] VGAM2336 RNA, herein schematically represented by

VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49891] VGAM2336 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49892] VGAM2336 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49893] VGAM2336 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of

Fig. 1.

[49894] It is appreciated that a function of VGR3670 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3670 gene include diagnosis, prevention and treatment of viral infection by Equine infectious anemia virus. Specific functions, and accordingly utilities, of VGR3670 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3670 gene: VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein and VGAM2336 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2336, VGAM2336, VGAM2336, VGAM2336, VGAM2336, VGAM2336, VGAM2336 and VGAM2336

[49895] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3671(VGR3671) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49896] VGR3671 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3671 gene was detected is described hereinabove with reference to Figs. 6-15.

[49897] VGR3671 gene encodes VGR3671 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49898] VGR3671 precursor RNA folds spatially, forming VGR3671 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3671 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3671 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49899] VGR3671 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA and VGAM2336 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49900] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA and VGAM2336 RNA respectively, herein schematically repre-

sented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49901] VGAM2336 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49902] VGAM2336 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49903] VGAM2336 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49904] VGAM2336 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49905] VGAM2336 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49906] VGAM2336 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[49907] VGAM2336 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[49908] VGAM2336 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM8

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[49909] It is appreciated that a function of VGR3671 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3671 gene include diagnosis, prevention and treatment of viral infection by Equine infectious anemia virus. Specific functions, and accordingly utilities, of VGR3671 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3671 gene: VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein and VGAM2336 host target protein,

herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2336, VGAM2336, VGAM2336, VGAM2336, VGAM2336, VGAM2336, VGAM2336 and VGAM2336

[49910] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3672(VGR3672) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49911] VGR3672 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3672 gene was detected is described hereinabove with reference to Figs. 6-15.

[49912] VGR3672 gene encodes VGR3672 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49913] VGR3672 precursor RNA folds spatially, forming VGR3672

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3672 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3672 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49914] VGR3672 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA, VGAM2336 precursor RNA and VGAM2336 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49915] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA, VGAM2336 RNA and VGAM2336 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49916] VGAM2336 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49917] VGAM2336 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49918] VGAM2336 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49919] VGAM2336 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM4

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[49920] VGAM2336 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2336 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2336 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2336 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[49921] It is appreciated that a function of VGR3672 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3672 gene include diagnosis, prevention and treatment of viral infection by Equine infectious anemia virus. Specific functions, and accordingly utilities, of VGR3672 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3672 gene: VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein, VGAM2336 host target protein and VGAM2336 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2336, VGAM2336, VGAM2336, VGAM2336 and VGAM2336

[49922] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3673(VGR3673) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[49923] VGR3673 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3673 gene was detected is described hereinabove with reference to Figs. 6-15.

[49924] VGR3673 gene encodes VGR3673 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49925] VGR3673 precursor RNA folds spatially, forming VGR3673 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3673 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3673 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49926] VGR3673 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM2338 precursor RNA and VGAM2339 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49927] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2338 RNA and VGAM2339 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49928] VGAM2338 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2338 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2338 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2338 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49929] VGAM2339 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2339 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2339 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2339 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49930] It is appreciated that a function of VGR3673 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3673 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3673 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by

VGAM RNAs comprised in the operon-like cluster of VGR3673 gene: VGAM2338 host target protein and VGAM2339 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2338 and VGAM2339

[49931] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3674(VGR3674) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49932] VGR3674 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3674 gene was detected is described hereinabove with reference to Figs. 6-15.

[49933] VGR3674 gene encodes VGR3674 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49934] VGR3674 precursor RNA folds spatially, forming VGR3674 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3674 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3674 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49935] VGR3674 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2343 precursor RNA and VGAM2344 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49936] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2343

RNA and VGAM2344 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49937] VGAM2343 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2343 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2343 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2343 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49938] VGAM2344 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2344 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2344 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2344 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49939] It is appreciated that a function of VGR3674 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3674 gene include diagnosis, prevention and treatment of viral infection by Swinepox virus. Specific functions, and accordingly utilities, of VGR3674 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3674 gene: VGAM2343 host target protein and VGAM2344 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2343 and VGAM2344

[49940] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3675(VGR3675) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49941] VGR3675 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3675 gene was detected is described hereinabove with reference to Figs. 6-15.

[49942] VGR3675 gene encodes VGR3675 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49943] VGR3675 precursor RNA folds spatially, forming VGR3675 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3675 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3675 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49944] VGR3675 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2349 precursor RNA and VGAM2350 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49945] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2349 RNA and VGAM2350 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49946] VGAM2349 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2349 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2349 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2349 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49947] VGAM2350 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2350 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2350 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2350 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49948] It is appreciated that a function of VGR3675 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3675 gene include

diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 2. Specific functions, and accordingly utilities, of VGR3675 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3675 gene: VGAM2349 host target protein and VGAM2350 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2349 and VGAM2350

[49949] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3676(VGR3676) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49950] VGR3676 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3676 gene was detected is described hereinabove with reference to Figs. 6-15.

[49951] VGR3676 gene encodes VGR3676 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49952] VGR3676 precursor RNA folds spatially, forming VGR3676 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3676 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3676 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49953] VGR3676 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2352 precursor RNA and VGAM2353

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49954] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2352 RNA and VGAM2353 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49955] VGAM2352 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2352 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2352 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2352 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[49956] VGAM2353 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2353 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2353 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2353 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49957] It is appreciated that a function of VGR3676 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3676 gene include diagnosis, prevention and treatment of viral infection by Indian citrus ringspot virus. Specific functions, and accordingly utilities, of VGR3676 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of

VGR3676 gene: VGAM2352 host target protein and VGAM2353 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2352 and VGAM2353

[49958] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3677(VGR3677) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49959] VGR3677 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3677 gene was detected is described hereinabove with reference to Figs. 6-15.

[49960] VGR3677 gene encodes VGR3677 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49961] VGR3677 precursor RNA folds spatially, forming VGR3677

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3677 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3677 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49962] VGR3677 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2355 precursor RNA and VGAM2356 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49963] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2355 RNA and VGAM2356 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49964] VGAM2355 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2355 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2355 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2355 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49965] VGAM2356 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2356 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2356 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2356 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49966] It is appreciated that a function of VGR3677 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3677 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3677 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3677 gene: VGAM2355 host target protein and VGAM2356 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2355 and VGAM2356

[49967] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3678(VGR3678) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49968] VGR3678 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3678 gene was detected is described hereinabove with reference to Figs. 6-15.

[49969] VGR3678 gene encodes VGR3678 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49970] VGR3678 precursor RNA folds spatially, forming VGR3678 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3678 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3678 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[49971] VGR3678 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2357 precursor RNA, VGAM2358 precursor RNA and VGAM2359 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49972] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2357 RNA, VGAM2358 RNA and VGAM2359 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49973] VGAM2357 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2357 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2357 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2357 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49974] VGAM2358 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2358 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2358 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2358 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49975] VGAM2359 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2359 host target RNA, herein schematically represented by VGAM3

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2359 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2359 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49976] It is appreciated that a function of VGR3678 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3678 gene include diagnosis, prevention and treatment of viral infection by Fowlpox virus. Specific functions, and accordingly utilities, of VGR3678 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3678 gene: VGAM2357 host target protein, VGAM2358 host target protein and VGAM2359 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated

hereinabove with reference to VGAM2357, VGAM2358 and VGAM2359

[49977] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3679(VGR3679) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49978] VGR3679 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3679 gene was detected is described hereinabove with reference to Figs. 6-15.

[49979] VGR3679 gene encodes VGR3679 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49980] VGR3679 precursor RNA folds spatially, forming VGR3679 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3679 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3679 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49981] VGR3679 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2362 precursor RNA, VGAM2363 precursor RNA and VGAM2364 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49982] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2362 RNA, VGAM2363 RNA and VGAM2364 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49983] VGAM2362 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2362 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2362 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2362 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49984] VGAM2363 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2363 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2363 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2363 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[49985] VGAM2364 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2364 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2364 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2364 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[49986] It is appreciated that a function of VGR3679 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3679 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3679 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3679 gene:

VGAM2362 host target protein, VGAM2363 host target protein and VGAM2364 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2362, VGAM2363 and VGAM2364

[49987] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3680(VGR3680) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49988] VGR3680 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3680 gene was detected is described hereinabove with reference to Figs. 6-15.

[49989] VGR3680 gene encodes VGR3680 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49990] VGR3680 precursor RNA folds spatially, forming VGR3680 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3680 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3680 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[49991] VGR3680 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2376 precursor RNA and VGAM2377 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[49992] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2376

RNA and VGAM2377 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[49993] VGAM2376 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2376 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2376 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2376 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[49994] VGAM2377 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2377 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2377 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2377 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[49995] It is appreciated that a function of VGR3680 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3680 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 60. Specific functions, and accordingly utilities, of VGR3680 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3680 gene: VGAM2376 host target protein and VGAM2377 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2376 and VGAM2377

[49996] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3681(VGR3681) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[49997] VGR3681 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3681 gene was detected is described hereinabove with reference to Figs. 6-15.

[49998] VGR3681 gene encodes VGR3681 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[49999] VGR3681 precursor RNA folds spatially, forming VGR3681 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3681 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3681 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50000] VGR3681 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2380 precursor RNA, VGAM2380 precursor RNA, VGAM2380 precursor RNA, VGAM2380 precursor RNA, VGAM2380 precursor RNA, VGAM2380 precursor RNA, VGAM2380 precursor RNA and VGAM2380 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50001] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2380 RNA, VGAM2380 RNA, VGAM2380 RNA, VGAM2380 RNA, VGAM2380 RNA, VGAM2380 RNA, VGAM2380 RNA and VGAM2380 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4

RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50002] VGAM2380 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2380 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2380 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2380 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50003] VGAM2380 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2380 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2380 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2380 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50004] VGAM2380 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2380 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2380 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2380 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50005] VGAM2380 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2380 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2380 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2380 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[50006] VGAM2380 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2380 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2380 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2380 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[50007] VGAM2380 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2380 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2380 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2380 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[50008] VGAM2380 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2380 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2380 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2380 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[50009] VGAM2380 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2380 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2380 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2380 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[50010] It is appreciated that a function of VGR3681 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3681 gene include diagnosis, prevention and treatment of viral infection by Camelpox virus. Specific functions, and accordingly utilities, of VGR3681 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3681 gene: VGAM2380 host target protein, VGAM2380 host target protein, VGAM2380 host target protein, VGAM2380 host target protein, VGAM2380 host target protein, VGAM2380 host target protein, VGAM2380 host target protein and VGAM2380 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through

VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2380, VGAM2380, VGAM2380, VGAM2380, VGAM2380, VGAM2380, VGAM2380 and VGAM2380

[50011] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3682(VGR3682) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50012] VGR3682 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3682 gene was detected is described hereinabove with reference to Figs. 6-15.

[50013] VGR3682 gene encodes VGR3682 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50014] VGR3682 precursor RNA folds spatially, forming VGR3682 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3682 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3682 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50015] VGR3682 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2384 precursor RNA and VGAM2385 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50016] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2384 RNA and VGAM2385 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50017] VGAM2384 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2384 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2384 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2384 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50018] VGAM2385 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2385 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2385 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2385 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50019] It is appreciated that a function of VGR3682 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3682 gene include diagnosis, prevention and treatment of viral infection by Peanut clump virus. Specific functions, and accordingly utilities, of VGR3682 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3682 gene: VGAM2384 host target protein and VGAM2385 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2384 and VGAM2385

[50020] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3683(VGR3683) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50021] VGR3683 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3683 gene was detected is described hereinabove with reference to Figs. 6-15.

[50022] VGR3683 gene encodes VGR3683 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50023] VGR3683 precursor RNA folds spatially, forming VGR3683 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3683 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3683 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50024] VGR3683 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2386 precursor RNA, VGAM2387 precursor RNA and VGAM2388 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50025] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2386 RNA, VGAM2387 RNA and VGAM2388 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50026] VGAM2386 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2386 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2386 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2386 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50027] VGAM2387 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2387 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2387 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2387 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50028] VGAM2388 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2388 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2388 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2388 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50029] It is appreciated that a function of VGR3683 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3683 gene include diagnosis, prevention and treatment of viral infection by Human coronavirus 229E. Specific functions, and accordingly utilities, of VGR3683 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3683 gene: VGAM2386 host target protein, VGAM2387 host target protein and VGAM2388 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2386, VGAM2387 and

VGAM2388

[50030] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3684(VGR3684) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50031] VGR3684 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3684 gene was detected is described hereinabove with reference to Figs. 6-15.

[50032] VGR3684 gene encodes VGR3684 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50033] VGR3684 precursor RNA folds spatially, forming VGR3684 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3684 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3684 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50034] VGR3684 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2390 precursor RNA and VGAM2391 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50035] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2390 RNA and VGAM2391 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50036] VGAM2390 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2390 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2390 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2390 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50037] VGAM2391 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2391 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2391 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2391 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50038] It is appreciated that a function of VGR3684 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3684 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 6B. Specific functions, and accordingly utilities, of VGR3684 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3684 gene: VGAM2390 host target protein and VGAM2391 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2390 and VGAM2391

[50039] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3685(VGR3685) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50040] VGR3685 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3685 gene was detected is described hereinabove with reference to Figs. 6-15.

[50041] VGR3685 gene encodes VGR3685 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50042] VGR3685 precursor RNA folds spatially, forming VGR3685 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3685 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3685 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50043] VGR3685 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2401 precursor RNA and VGAM2402

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50044] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2401 RNA and VGAM2402 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50045] VGAM2401 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2401 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2401 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2401 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[50046] VGAM2402 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2402 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2402 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2402 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50047] It is appreciated that a function of VGR3685 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3685 gene include diagnosis, prevention and treatment of viral infection by Grapevine trichovirus B. Specific functions, and accordingly utilities, of VGR3685 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3685

gene: VGAM2401 host target protein and VGAM2402 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2401 and VGAM2402

[50048] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3686(VGR3686) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50049] VGR3686 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3686 gene was detected is described hereinabove with reference to Figs. 6-15.

[50050] VGR3686 gene encodes VGR3686 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50051] VGR3686 precursor RNA folds spatially, forming VGR3686

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3686 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3686 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50052] VGR3686 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2407 precursor RNA and VGAM2408 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50053] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2407 RNA and VGAM2408 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50054] VGAM2407 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2407 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2407 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2407 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50055] VGAM2408 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2408 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2408 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2408 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50056] It is appreciated that a function of VGR3686 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3686 gene include diagnosis, prevention and treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGR3686 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3686 gene: VGAM2407 host target protein and VGAM2408 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2407 and VGAM2408

[50057] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3687(VGR3687) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50058] VGR3687 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3687 gene was detected is described hereinabove with reference to Figs. 6-15.

[50059] VGR3687 gene encodes VGR3687 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50060] VGR3687 precursor RNA folds spatially, forming VGR3687 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3687 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3687 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[50061] VGR3687 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2409 precursor RNA and VGAM2410 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50062] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2409 RNA and VGAM2410 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50063] VGAM2409 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2409 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2409 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2409 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50064] VGAM2410 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2410 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2410 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2410 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50065] It is appreciated that a function of VGR3687 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3687 gene include diagnosis, prevention and treatment of viral infection by

Avian sarcoma virus. Specific functions, and accordingly utilities, of VGR3687 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3687 gene: VGAM2409 host target protein and VGAM2410 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2409 and VGAM2410

[50066] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3688(VGR3688) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50067] VGR3688 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3688 gene was detected is described hereinabove with reference to Figs.

6-15.

[50068] VGR3688 gene encodes VGR3688 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50069] VGR3688 precursor RNA folds spatially, forming VGR3688 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3688 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3688 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50070] VGR3688 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2414 precursor RNA and VGAM2415 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[50071] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2414 RNA and VGAM2415 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50072] VGAM2414 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2414 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2414 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2414 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50073] VGAM2415 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2415 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2415 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2415 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50074] It is appreciated that a function of VGR3688 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3688 gene include diagnosis, prevention and treatment of viral infection by Alcelaphine herpesvirus 1. Specific functions, and accordingly utilities, of VGR3688 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3688 gene: VGAM2414 host target protein and VGAM2415 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target

genes is elaborated hereinabove with reference to VGAM2414 and VGAM2415

[50075] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3689(VGR3689) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50076] VGR3689 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3689 gene was detected is described hereinabove with reference to Figs. 6-15.

[50077] VGR3689 gene encodes VGR3689 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50078] VGR3689 precursor RNA folds spatially, forming VGR3689 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3689 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3689 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50079] VGR3689 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA and VGAM2416 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50080] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2416

RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA and VGAM2416 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50081] VGAM2416 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50082] VGAM2416 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50083] VGAM2416 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50084] VGAM2416 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host

target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[50085] VGAM2416 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[50086] VGAM2416 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[50087] VGAM2416 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[50088] VGAM2416 RNA, herein schematically represented by

VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[50089] It is appreciated that a function of VGR3689 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3689 gene include diagnosis, prevention and treatment of viral infection by Y73 sarcoma virus. Specific functions, and accordingly utilities, of VGR3689 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3689 gene: VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host

target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein and VGAM2416 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416 and VGAM2416

[50090] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3690(VGR3690) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50091] VGR3690 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3690 gene was detected is described hereinabove with reference to Figs. 6-15.

[50092] VGR3690 gene encodes VGR3690 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50093] VGR3690 precursor RNA folds spatially, forming VGR3690 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3690 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3690 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50094] VGR3690 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA and VGAM2416 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR,

VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50095] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA and VGAM2416 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50096] VGAM2416 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2416 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50097] VGAM2416 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50098] VGAM2416 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein

schematically represented by VGAM3 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50099] VGAM2416 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[50100] VGAM2416 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[50101] VGAM2416 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[50102] VGAM2416 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[50103] VGAM2416 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[50104] It is appreciated that a function of VGR3690 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3690 gene include diagnosis, prevention and treatment of viral infection by

Y73 sarcoma virus. Specific functions, and accordingly utilities, of VGR3690 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3690 gene: VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein and VGAM2416 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416 and VGAM2416

[50105] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3691(VGR3691) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[50106] VGR3691 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3691 gene was detected is described hereinabove with reference to Figs. 6-15.

[50107] VGR3691 gene encodes VGR3691 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50108] VGR3691 precursor RNA folds spatially, forming VGR3691 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3691 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3691 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50109] VGR3691 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM pre-

cursor RNAs, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA, VGAM2416 precursor RNA and VGAM2416 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50110] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA, VGAM2416 RNA and VGAM2416 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50111] VGAM2416 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50112] VGAM2416 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50113] VGAM2416 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50114] VGAM2416 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[50115] VGAM2416 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[50116] VGAM2416 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of

Fig. 1.

[50117] VGAM2416 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[50118] VGAM2416 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM2416 host target protein, herein schematically

represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[50119] It is appreciated that a function of VGR3691 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3691 gene include diagnosis, prevention and treatment of viral infection by Y73 sarcoma virus. Specific functions, and accordingly utilities, of VGR3691 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3691 gene: VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein, VGAM2416 host target protein and VGAM2416 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416, VGAM2416 and VGAM2416

[50120] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3692(VGR3692) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50121] VGR3692 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3692 gene was detected is described hereinabove with reference to Figs. 6-15.

[50122] VGR3692 gene encodes VGR3692 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50123] VGR3692 precursor RNA folds spatially, forming VGR3692 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3692 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3692 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50124] VGR3692 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2416 precursor RNA, VGAM2416 precursor RNA and VGAM2417 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50125] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2416 RNA, VGAM2416 RNA and VGAM2417 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50126] VGAM2416 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50127] VGAM2416 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2416 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2416 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2416 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50128] VGAM2417 RNA, herein schematically represented by

VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2417 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2417 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2417 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50129] It is appreciated that a function of VGR3692 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3692 gene include diagnosis, prevention and treatment of viral infection by Y73 sarcoma virus. Specific functions, and accordingly utilities, of VGR3692 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3692 gene: VGAM2416 host target protein, VGAM2416 host target protein and VGAM2417 host target protein, herein

schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2416, VGAM2416 and VGAM2417

[50130] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3693(VGR3693) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50131] VGR3693 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3693 gene was detected is described hereinabove with reference to Figs. 6-15.

[50132] VGR3693 gene encodes VGR3693 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50133] VGR3693 precursor RNA folds spatially, forming VGR3693 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3693 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3693 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50134] VGR3693 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2418 precursor RNA, VGAM2419 precursor RNA and VGAM2420 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50135] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2418 RNA, VGAM2419 RNA and VGAM2420 RNA respectively,

herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50136] VGAM2418 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2418 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2418 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2418 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50137] VGAM2419 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2419 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2419 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2419 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50138] VGAM2420 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2420 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2420 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2420 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50139] It is appreciated that a function of VGR3693 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3693 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3693 gene, herein desig-

nated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3693 gene: VGAM2418 host target protein, VGAM2419 host target protein and VGAM2420 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2418, VGAM2419 and VGAM2420

[50140] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3694(VGR3694) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50141] VGR3694 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3694 gene was detected is described hereinabove with reference to Figs. 6-15.

[50142] VGR3694 gene encodes VGR3694 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50143] VGR3694 precursor RNA folds spatially, forming VGR3694 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3694 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3694 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50144] VGR3694 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2424 precursor RNA and VGAM2425 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50145] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2424 RNA and VGAM2425 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50146] VGAM2424 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2424 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2424 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2424 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50147] VGAM2425 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2425 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2425 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2425 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50148] It is appreciated that a function of VGR3694 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3694 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3694 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3694 gene: VGAM2424 host target protein and VGAM2425 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2424 and

VGAM2425

[50149] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3695(VGR3695) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50150] VGR3695 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3695 gene was detected is described hereinabove with reference to Figs. 6-15.

[50151] VGR3695 gene encodes VGR3695 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50152] VGR3695 precursor RNA folds spatially, forming VGR3695 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3695 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3695 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50153] VGR3695 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 5 separate VGAM precursor RNAs, VGAM2438 precursor RNA, VGAM2438 precursor RNA, VGAM2438 precursor RNA, VGAM2438 precursor RNA and VGAM2439 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR and VGAM5 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50154] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2438 RNA, VGAM2438 RNA, VGAM2438 RNA, VGAM2438 RNA and VGAM2439 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA and VGAM5 RNA respectively, each of which

VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50155] VGAM2438 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2438 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2438 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2438 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50156] VGAM2438 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2438 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2438 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2438 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50157] VGAM2438 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2438 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2438 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2438 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50158] VGAM2438 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM2438 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2438 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA

into VGAM2438 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[50159] VGAM2439 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM2439 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2439 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM2439 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[50160] It is appreciated that a function of VGR3695 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3695 gene include diagnosis, prevention and treatment of viral infection by Variola virus. Specific functions, and accordingly utilities, of VGR3695 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host

target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3695 gene: VGAM2438 host target protein, VGAM2438 host target protein, VGAM2438 host target protein, VGAM2438 host target protein and VGAM2439 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2438, VGAM2438, VGAM2438, VGAM2438 and VGAM2439

[50161] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3696(VGR3696) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50162] VGR3696 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3696 gene was detected is described hereinabove with reference to Figs. 6-15.

[50163] VGR3696 gene encodes VGR3696 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50164] VGR3696 precursor RNA folds spatially, forming VGR3696 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3696 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3696 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50165] VGR3696 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2445 precursor RNA and VGAM2446 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50166] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2445 RNA and VGAM2446 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50167] VGAM2445 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2445 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2445 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2445 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50168] VGAM2446 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2446 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2446 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2446 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50169] It is appreciated that a function of VGR3696 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3696 gene include diagnosis, prevention and treatment of viral infection by Canine adenovirus. Specific functions, and accordingly utilities, of VGR3696 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3696 gene: VGAM2445 host target protein and VGAM2446 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2445 and

VGAM2446

[50170] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3697(VGR3697) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50171] VGR3697 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3697 gene was detected is described hereinabove with reference to Figs. 6-15.

[50172] VGR3697 gene encodes VGR3697 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50173] VGR3697 precursor RNA folds spatially, forming VGR3697 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3697 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3697 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50174] VGR3697 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2449 precursor RNA and VGAM2450 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50175] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2449 RNA and VGAM2450 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50176] VGAM2449 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2449 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2449 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2449 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50177] VGAM2450 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2450 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2450 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2450 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50178] It is appreciated that a function of VGR3697 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3697 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3697 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3697 gene: VGAM2449 host target protein and VGAM2450 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2449 and VGAM2450

[50179] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3698(VGR3698) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50180] VGR3698 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3698 gene was detected is described hereinabove with reference to Figs. 6-15.

[50181] VGR3698 gene encodes VGR3698 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50182] VGR3698 precursor RNA folds spatially, forming VGR3698 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3698 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3698 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50183] VGR3698 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2454 precursor RNA and VGAM2455

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50184] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2454 RNA and VGAM2455 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50185] VGAM2454 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2454 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2454 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2454 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[50186] VGAM2455 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2455 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2455 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2455 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50187] It is appreciated that a function of VGR3698 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3698 gene include diagnosis, prevention and treatment of viral infection by Porcine adenovirus A. Specific functions, and accordingly utilities, of VGR3698 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3698 gene:

VGAM2454 host target protein and VGAM2455 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2454 and VGAM2455

[50188] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3699(VGR3699) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50189] VGR3699 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3699 gene was detected is described hereinabove with reference to Figs. 6-15.

[50190] VGR3699 gene encodes VGR3699 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50191] VGR3699 precursor RNA folds spatially, forming VGR3699

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3699 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3699 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50192] VGR3699 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2457 precursor RNA and VGAM2458 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50193] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2457 RNA and VGAM2458 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50194] VGAM2457 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2457 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2457 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2457 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50195] VGAM2458 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2458 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2458 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2458 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50196] It is appreciated that a function of VGR3699 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3699 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3699 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3699 gene: VGAM2457 host target protein and VGAM2458 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2457 and VGAM2458

[50197] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3700(VGR3700) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50198] VGR3700 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3700 gene was detected is described hereinabove with reference to Figs. 6-15.

[50199] VGR3700 gene encodes VGR3700 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50200] VGR3700 precursor RNA folds spatially, forming VGR3700 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3700 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3700 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[50201] VGR3700 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2460 precursor RNA and VGAM2461 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50202] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2460 RNA and VGAM2461 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50203] VGAM2460 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2460 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2460 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2460 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50204] VGAM2461 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2461 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2461 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2461 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50205] It is appreciated that a function of VGR3700 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3700 gene include diagnosis, prevention and treatment of viral infection by

Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3700 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3700 gene: VGAM2460 host target protein and VGAM2461 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2460 and VGAM2461

[50206] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3701(VGR3701) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50207] VGR3701 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3701 gene was detected is described hereinabove with reference to Figs.

6-15.

[50208] VGR3701 gene encodes VGR3701 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50209] VGR3701 precursor RNA folds spatially, forming VGR3701 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3701 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3701 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50210] VGR3701 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2472 precursor RNA and VGAM2473 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[50211] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2472 RNA and VGAM2473 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50212] VGAM2472 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2472 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2472 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2472 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50213] VGAM2473 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2473 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2473 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2473 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50214] It is appreciated that a function of VGR3701 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3701 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3701 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3701 gene: VGAM2472 host target protein and VGAM2473 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM2472 and VGAM2473

[50215] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3702(VGR3702) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50216] VGR3702 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3702 gene was detected is described hereinabove with reference to Figs. 6-15.

[50217] VGR3702 gene encodes VGR3702 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50218] VGR3702 precursor RNA folds spatially, forming VGR3702 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3702 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3702 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50219] VGR3702 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2477 precursor RNA and VGAM2478 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50220] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2477 RNA and VGAM2478 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50221] VGAM2477 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2477 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2477 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2477 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50222] VGAM2478 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2478 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2478 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2478 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50223] It is appreciated that a function of VGR3702 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3702 gene include diagnosis, prevention and treatment of viral infection by Casphalia extranea densovirus. Specific functions, and accordingly utilities, of VGR3702 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3702 gene: VGAM2477 host target protein and VGAM2478 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2477 and VGAM2478

[50224] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3703(VGR3703) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[50225] VGR3703 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3703 gene was detected is described hereinabove with reference to Figs. 6-15.

[50226] VGR3703 gene encodes VGR3703 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50227] VGR3703 precursor RNA folds spatially, forming VGR3703 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3703 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3703 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50228] VGR3703 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM2480 precursor RNA and VGAM2481 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50229] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2480 RNA and VGAM2481 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50230] VGAM2480 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2480 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2480 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2480 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50231] VGAM2481 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2481 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2481 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2481 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50232] It is appreciated that a function of VGR3703 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3703 gene include diagnosis, prevention and treatment of viral infection by Human adenovirus C. Specific functions, and accordingly utilities, of VGR3703 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3703 gene: VGAM2480 host target protein and VGAM2481 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2480 and VGAM2481

[50233] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3704(VGR3704) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50234] VGR3704 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3704 gene was detected is described hereinabove with reference to Figs. 6-15.

[50235] VGR3704 gene encodes VGR3704 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50236] VGR3704 precursor RNA folds spatially, forming VGR3704 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3704 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3704 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50237] VGR3704 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2484 precursor RNA and VGAM2485 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50238] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2484

RNA and VGAM2485 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50239] VGAM2484 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2484 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2484 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2484 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50240] VGAM2485 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2485 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2485 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2485 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50241] It is appreciated that a function of VGR3704 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3704 gene include diagnosis, prevention and treatment of viral infection by Satellite virus of maize white line mosaic virus. Specific functions, and accordingly utilities, of VGR3704 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3704 gene: VGAM2484 host target protein and VGAM2485 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2484 and VGAM2485

[50242] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3705(VGR3705) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50243] VGR3705 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3705 gene was detected is described hereinabove with reference to Figs. 6-15.

[50244] VGR3705 gene encodes VGR3705 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50245] VGR3705 precursor RNA folds spatially, forming VGR3705 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3705 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3705 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50246] VGR3705 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2486 precursor RNA, VGAM2487 precursor RNA and VGAM2488 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50247] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2486 RNA, VGAM2487 RNA and VGAM2488 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50248] VGAM2486 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2486 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2486 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2486 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50249] VGAM2487 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2487 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2487 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2487 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50250] VGAM2488 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2488 host

target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2488 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2488 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50251] It is appreciated that a function of VGR3705 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3705 gene include diagnosis, prevention and treatment of viral infection by Saimiriine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3705 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3705 gene: VGAM2486 host target protein, VGAM2487 host target protein and VGAM2488 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively.

The function of these host target genes is elaborated hereinabove with reference to VGAM2486, VGAM2487 and VGAM2488

[50252] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3706(VGR3706) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50253] VGR3706 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3706 gene was detected is described hereinabove with reference to Figs. 6-15.

[50254] VGR3706 gene encodes VGR3706 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50255] VGR3706 precursor RNA folds spatially, forming VGR3706 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3706 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3706 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50256] VGR3706 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2489 precursor RNA and VGAM2490 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50257] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2489 RNA and VGAM2490 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50258] VGAM2489 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2489 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2489 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2489 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50259] VGAM2490 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2490 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2490 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2490 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[50260] It is appreciated that a function of VGR3706 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3706 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3706 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3706 gene: VGAM2489 host target protein and VGAM2490 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2489 and VGAM2490

[50261] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3707(VGR3707) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[50262] VGR3707 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3707 gene was detected is described hereinabove with reference to Figs. 6-15.

[50263] VGR3707 gene encodes VGR3707 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50264] VGR3707 precursor RNA folds spatially, forming VGR3707 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3707 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3707 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50265] VGR3707 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2511 precursor RNA and VGAM2512 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50266] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2511 RNA and VGAM2512 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50267] VGAM2511 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2511 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2511 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2511 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50268] VGAM2512 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2512 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2512 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2512 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50269] It is appreciated that a function of VGR3707 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3707 gene include diagnosis, prevention and treatment of viral infection by Amsacta moorei entomopoxvirus. Specific functions, and accordingly utilities, of VGR3707 gene, herein designated VGR GENE, correlate with, and may be deduced from, the

identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3707 gene: VGAM2511 host target protein and VGAM2512 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2511 and VGAM2512

[50270] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3708(VGR3708) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50271] VGR3708 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3708 gene was detected is described hereinabove with reference to Figs. 6-15.

[50272] VGR3708 gene encodes VGR3708 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[50273] VGR3708 precursor RNA folds spatially, forming VGR3708 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3708 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3708 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50274] VGR3708 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2521 precursor RNA and VGAM2522 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50275] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM2521 RNA and VGAM2522 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50276] VGAM2521 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2521 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2521 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2521 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50277] VGAM2522 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2522 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2522 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2522 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50278] It is appreciated that a function of VGR3708 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3708 gene include diagnosis, prevention and treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGR3708 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3708 gene: VGAM2521 host target protein and VGAM2522 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2521 and VGAM2522

[50279] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3709(VGR3709) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50280] VGR3709 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3709 gene was detected is described hereinabove with reference to Figs. 6-15.

[50281] VGR3709 gene encodes VGR3709 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50282] VGR3709 precursor RNA folds spatially, forming VGR3709 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3709 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3709 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50283] VGR3709 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2530 precursor RNA and VGAM2531 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50284] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2530 RNA and VGAM2531 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50285] VGAM2530 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2530 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2530 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2530 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50286] VGAM2531 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2531 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2531 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2531 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50287] It is appreciated that a function of VGR3709 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3709 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 47. Specific functions, and accordingly utilities, of VGR3709 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3709 gene: VGAM2530 host target protein and VGAM2531 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2530 and VGAM2531

[50288] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3710(VGR3710) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50289] VGR3710 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3710 gene was detected is described hereinabove with reference to Figs. 6-15.

[50290] VGR3710 gene encodes VGR3710 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50291] VGR3710 precursor RNA folds spatially, forming VGR3710 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3710 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3710 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50292] VGR3710 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2537 precursor RNA and VGAM2538 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively,

each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50293] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2537 RNA and VGAM2538 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50294] VGAM2537 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2537 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2537 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2537 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50295] VGAM2538 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2538 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2538 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2538 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50296] It is appreciated that a function of VGR3710 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3710 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3710 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3710 gene: VGAM2537 host target protein and VGAM2538 host target protein, herein schematically represented by VGAM1 HOST

TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2537 and VGAM2538

[50297] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3711(VGR3711) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50298] VGR3711 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3711 gene was detected is described hereinabove with reference to Figs. 6-15.

[50299] VGR3711 gene encodes VGR3711 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50300] VGR3711 precursor RNA folds spatially, forming VGR3711 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3711 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3711 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50301] VGR3711 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2542 precursor RNA and VGAM2543 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50302] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2542 RNA and VGAM2543 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[50303] VGAM2542 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2542 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2542 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2542 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50304] VGAM2543 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2543 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2543 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2543 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50305] It is appreciated that a function of VGR3711 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3711 gene include diagnosis, prevention and treatment of viral infection by Potato virus Y. Specific functions, and accordingly utilities, of VGR3711 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3711 gene: VGAM2542 host target protein and VGAM2543 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2542 and VGAM2543

[50306] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3712(VGR3712) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50307] VGR3712 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3712 gene was detected is described hereinabove with reference to Figs. 6-15.

[50308] VGR3712 gene encodes VGR3712 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50309] VGR3712 precursor RNA folds spatially, forming VGR3712 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3712 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3712 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50310] VGR3712 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2544 precursor RNA and VGAM2545 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50311] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2544 RNA and VGAM2545 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50312] VGAM2544 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2544 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2544 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM2544 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50313] VGAM2545 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2545 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2545 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2545 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50314] It is appreciated that a function of VGR3712 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3712 gene include diagnosis, prevention and treatment of viral infection by Chimpanzee cytomegalovirus. Specific functions, and accordingly utilities, of VGR3712 gene, herein designated

VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3712 gene: VGAM2544 host target protein and VGAM2545 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2544 and VGAM2545

[50315] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3713(VGR3713) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50316] VGR3713 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3713 gene was detected is described hereinabove with reference to Figs. 6-15.

[50317] VGR3713 gene encodes VGR3713 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50318] VGR3713 precursor RNA folds spatially, forming VGR3713 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3713 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3713 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50319] VGR3713 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2547 precursor RNA and VGAM2548 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50320] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2547 RNA and VGAM2548 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50321] VGAM2547 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2547 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2547 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2547 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50322] VGAM2548 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2548 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2548 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2548 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50323] It is appreciated that a function of VGR3713 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3713 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 6B. Specific functions, and accordingly utilities, of VGR3713 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3713 gene: VGAM2547 host target protein and VGAM2548 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2547 and VGAM2548

[50324] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3714(VGR3714) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50325] VGR3714 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3714 gene was detected is described hereinabove with reference to Figs. 6-15.

[50326] VGR3714 gene encodes VGR3714 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50327] VGR3714 precursor RNA folds spatially, forming VGR3714 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3714 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3714 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50328] VGR3714 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2549 precursor RNA and VGAM2550 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50329] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2549 RNA and VGAM2550 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50330] VGAM2549 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2549 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2549 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2549 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50331] VGAM2550 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2550 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2550 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2550 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50332] It is appreciated that a function of VGR3714 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3714 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3714 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3714 gene: VGAM2549 host target protein and VGAM2550 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2549 and VGAM2550

[50333] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3715(VGR3715) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50334] VGR3715 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3715 gene was detected is described hereinabove with reference to Figs. 6-15.

[50335] VGR3715 gene encodes VGR3715 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50336] VGR3715 precursor RNA folds spatially, forming VGR3715 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3715 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3715 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50337] VGR3715 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2556 precursor RNA and VGAM2557 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50338] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2556 RNA and VGAM2557 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50339] VGAM2556 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2556 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2556 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2556 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50340] VGAM2557 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2557 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2557 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2557 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50341] It is appreciated that a function of VGR3715 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3715 gene include diagnosis, prevention and treatment of viral infection by Rana tigrina ranavirus. Specific functions, and accordingly utilities, of VGR3715 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3715 gene: VGAM2556 host target protein and VGAM2557 host target

protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2556 and VGAM2557

[50342] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3716(VGR3716) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50343] VGR3716 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3716 gene was detected is described hereinabove with reference to Figs. 6-15.

[50344] VGR3716 gene encodes VGR3716 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50345] VGR3716 precursor RNA folds spatially, forming VGR3716 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3716 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3716 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50346] VGR3716 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2563 precursor RNA and VGAM2564 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50347] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2563 RNA and VGAM2564 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50348] VGAM2563 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2563 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2563 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2563 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50349] VGAM2564 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2564 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2564 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2564 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50350] It is appreciated that a function of VGR3716 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3716 gene include diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3716 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3716 gene: VGAM2563 host target protein and VGAM2564 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2563 and VGAM2564

[50351] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3717(VGR3717) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50352] VGR3717 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3717 gene was detected is described hereinabove with reference to Figs. 6-15.

[50353] VGR3717 gene encodes VGR3717 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50354] VGR3717 precursor RNA folds spatially, forming VGR3717 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3717 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3717 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50355] VGR3717 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2576 precursor RNA and VGAM2576 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50356] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2576 RNA and VGAM2576 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50357] VGAM2576 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2576 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2576 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2576 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50358] VGAM2576 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2576 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2576 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2576 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50359] It is appreciated that a function of VGR3717 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3717 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities,

of VGR3717 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3717 gene: VGAM2576 host target protein and VGAM2576 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2576 and VGAM2576

[50360] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3718(VGR3718) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50361] VGR3718 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3718 gene was detected is described hereinabove with reference to Figs. 6-15.

[50362] VGR3718 gene encodes VGR3718 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50363] VGR3718 precursor RNA folds spatially, forming VGR3718 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3718 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3718 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50364] VGR3718 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2579 precursor RNA and VGAM2580 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50365] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2579 RNA and VGAM2580 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50366] VGAM2579 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2579 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2579 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2579 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50367] VGAM2580 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2580 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2580 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2580 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50368] It is appreciated that a function of VGR3718 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3718 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3718 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3718 gene: VGAM2579 host target protein and VGAM2580 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with refer-

ence to VGAM2579 and VGAM2580

[50369] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3719(VGR3719) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50370] VGR3719 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3719 gene was detected is described hereinabove with reference to Figs. 6-15.

[50371] VGR3719 gene encodes VGR3719 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50372] VGR3719 precursor RNA folds spatially, forming VGR3719 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3719 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3719 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50373] VGR3719 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2589 precursor RNA and VGAM2590 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50374] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2589 RNA and VGAM2590 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50375] VGAM2589 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2589 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2589 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2589 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50376] VGAM2590 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2590 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2590 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2590 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50377] It is appreciated that a function of VGR3719 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3719 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 2. Specific functions, and accordingly utilities, of VGR3719 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3719 gene: VGAM2589 host target protein and VGAM2590 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2589 and VGAM2590

[50378] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3720(VGR3720) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50379] VGR3720 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3720 gene was detected is described hereinabove with reference to Figs. 6-15.

[50380] VGR3720 gene encodes VGR3720 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50381] VGR3720 precursor RNA folds spatially, forming VGR3720 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3720 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3720 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50382] VGR3720 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2599 precursor RNA and VGAM2600

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50383] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2599 RNA and VGAM2600 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50384] VGAM2599 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2599 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2599 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2599 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[50385] VGAM2600 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2600 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2600 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2600 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50386] It is appreciated that a function of VGR3720 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3720 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 7. Specific functions, and accordingly utilities, of VGR3720 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3720 gene:

VGAM2599 host target protein and VGAM2600 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2599 and VGAM2600

[50387] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3721(VGR3721) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50388] VGR3721 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3721 gene was detected is described hereinabove with reference to Figs. 6-15.

[50389] VGR3721 gene encodes VGR3721 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50390] VGR3721 precursor RNA folds spatially, forming VGR3721

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3721 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3721 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50391] VGR3721 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2607 precursor RNA and VGAM2608 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50392] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2607 RNA and VGAM2608 RNA respectively, herein schemati-

cally represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50393] VGAM2607 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2607 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2607 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2607 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50394] VGAM2608 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2608 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2608 host target RNA, herein

schematically represented by VGAM2 HOST TARGET RNA into VGAM2608 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50395] It is appreciated that a function of VGR3721 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3721 gene include diagnosis, prevention and treatment of viral infection by Foxtail mosaic virus. Specific functions, and accordingly utilities, of VGR3721 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3721 gene: VGAM2607 host target protein and VGAM2608 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2607 and VGAM2608

[50396] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3722(VGR3722) viral

gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50397] VGR3722 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3722 gene was detected is described hereinabove with reference to Figs. 6-15.

[50398] VGR3722 gene encodes VGR3722 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50399] VGR3722 precursor RNA folds spatially, forming VGR3722 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3722 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3722 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the

second half thereof, as is well known in the art.

[50400] VGR3722 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2609 precursor RNA and VGAM2610 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50401] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2609 RNA and VGAM2610 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50402] VGAM2609 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2609 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2609 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2609 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50403] VGAM2610 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2610 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2610 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2610 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50404] It is appreciated that a function of VGR3722 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3722 gene include diagnosis, prevention and treatment of viral infection by

Macaca mulatta rhadinovirus. Specific functions, and accordingly utilities, of VGR3722 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3722 gene: VGAM2609 host target protein and VGAM2610 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2609 and VGAM2610

[50405] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3723(VGR3723) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50406] VGR3723 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3723 gene was detected is described hereinabove with reference to Figs.

6-15.

[50407] VGR3723 gene encodes VGR3723 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50408] VGR3723 precursor RNA folds spatially, forming VGR3723 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3723 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3723 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50409] VGR3723 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2617 precursor RNA and VGAM2618 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[50410] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2617 RNA and VGAM2618 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50411] VGAM2617 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2617 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2617 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2617 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50412] VGAM2618 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2618 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2618 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2618 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50413] It is appreciated that a function of VGR3723 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3723 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 21. Specific functions, and accordingly utilities, of VGR3723 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3723 gene: VGAM2617 host target protein and VGAM2618 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these

host target genes is elaborated hereinabove with reference to VGAM2617 and VGAM2618

[50414] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3724(VGR3724) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50415] VGR3724 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3724 gene was detected is described hereinabove with reference to Figs. 6-15.

[50416] VGR3724 gene encodes VGR3724 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50417] VGR3724 precursor RNA folds spatially, forming VGR3724 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3724 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3724 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50418] VGR3724 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2621 precursor RNA and VGAM2622 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50419] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2621 RNA and VGAM2622 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50420] VGAM2621 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2621 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2621 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2621 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50421] VGAM2622 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2622 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2622 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2622 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50422] It is appreciated that a function of VGR3724 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3724 gene include diagnosis, prevention and treatment of viral infection by Tupaia herpesvirus. Specific functions, and accordingly utilities, of VGR3724 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3724 gene: VGAM2621 host target protein and VGAM2622 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2621 and VGAM2622

[50423] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3725(VGR3725) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[50424] VGR3725 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3725 gene was detected is described hereinabove with reference to Figs. 6-15.

[50425] VGR3725 gene encodes VGR3725 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50426] VGR3725 precursor RNA folds spatially, forming VGR3725 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3725 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3725 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50427] VGR3725 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM2623 precursor RNA and VGAM2624 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50428] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2623 RNA and VGAM2624 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50429] VGAM2623 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2623 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2623 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2623 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50430] VGAM2624 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2624 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2624 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2624 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50431] It is appreciated that a function of VGR3725 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3725 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 1. Specific functions, and accordingly utilities, of VGR3725 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs

comprised in the operon-like cluster of VGR3725 gene: VGAM2623 host target protein and VGAM2624 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2623 and VGAM2624

[50432] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3726(VGR3726) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50433] VGR3726 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3726 gene was detected is described hereinabove with reference to Figs. 6-15.

[50434] VGR3726 gene encodes VGR3726 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50435] VGR3726 precursor RNA folds spatially, forming VGR3726 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3726 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3726 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50436] VGR3726 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2630 precursor RNA and VGAM2631 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50437] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2630

RNA and VGAM2631 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50438] VGAM2630 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2630 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2630 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2630 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50439] VGAM2631 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2631 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2631 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2631 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50440] It is appreciated that a function of VGR3726 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3726 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3726 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3726 gene: VGAM2630 host target protein and VGAM2631 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2630 and VGAM2631

[50441] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3727(VGR3727) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50442] VGR3727 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3727 gene was detected is described hereinabove with reference to Figs. 6-15.

[50443] VGR3727 gene encodes VGR3727 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50444] VGR3727 precursor RNA folds spatially, forming VGR3727 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3727 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3727 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50445] VGR3727 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2632 precursor RNA and VGAM2633 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50446] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2632 RNA and VGAM2633 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50447] VGAM2632 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2632 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2632 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2632 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50448] VGAM2633 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2633 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2633 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2633 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50449] It is appreciated that a function of VGR3727 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3727 gene include

diagnosis, prevention and treatment of viral infection by Cowpox virus. Specific functions, and accordingly utilities, of VGR3727 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3727 gene: VGAM2632 host target protein and VGAM2633 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2632 and VGAM2633

[50450] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3728(VGR3728) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50451] VGR3728 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3728 gene was

detected is described hereinabove with reference to Figs. 6-15.

[50452] VGR3728 gene encodes VGR3728 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50453] VGR3728 precursor RNA folds spatially, forming VGR3728 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3728 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3728 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50454] VGR3728 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2635 precursor RNA and VGAM2636 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50455] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2635 RNA and VGAM2636 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50456] VGAM2635 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2635 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2635 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2635 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50457] VGAM2636 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2636 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2636 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2636 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50458] It is appreciated that a function of VGR3728 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3728 gene include diagnosis, prevention and treatment of viral infection by Bovine herpesvirus 4. Specific functions, and accordingly utilities, of VGR3728 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3728 gene: VGAM2635 host target protein and VGAM2636 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN re-

spectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2635 and VGAM2636

[50459] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3729(VGR3729) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50460] VGR3729 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3729 gene was detected is described hereinabove with reference to Figs. 6-15.

[50461] VGR3729 gene encodes VGR3729 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50462] VGR3729 precursor RNA folds spatially, forming VGR3729 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3729 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3729 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50463] VGR3729 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2647 precursor RNA and VGAM2648 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50464] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2647 RNA and VGAM2648 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50465] VGAM2647 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2647 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2647 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2647 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50466] VGAM2648 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2648 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2648 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2648 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[50467] It is appreciated that a function of VGR3729 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3729 gene include diagnosis, prevention and treatment of viral infection by Fowl adenovirus D. Specific functions, and accordingly utilities, of VGR3729 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3729 gene: VGAM2647 host target protein and VGAM2648 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2647 and VGAM2648

[50468] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3730(VGR3730) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[50469] VGR3730 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3730 gene was detected is described hereinabove with reference to Figs. 6-15.

[50470] VGR3730 gene encodes VGR3730 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50471] VGR3730 precursor RNA folds spatially, forming VGR3730 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3730 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3730 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50472] VGR3730 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2651 precursor RNA and VGAM2652 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50473] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2651 RNA and VGAM2652 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50474] VGAM2651 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2651 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2651 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2651 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50475] VGAM2652 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2652 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2652 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2652 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50476] It is appreciated that a function of VGR3730 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3730 gene include diagnosis, prevention and treatment of viral infection by Molluscum contagiosum virus. Specific functions, and accordingly utilities, of VGR3730 gene, herein designated VGR GENE, correlate with, and may be deduced from, the

identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3730 gene: VGAM2651 host target protein and VGAM2652 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2651 and VGAM2652

[50477] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3731(VGR3731) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50478] VGR3731 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3731 gene was detected is described hereinabove with reference to Figs. 6-15.

[50479] VGR3731 gene encodes VGR3731 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[50480] VGR3731 precursor RNA folds spatially, forming VGR3731 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3731 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3731 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50481] VGR3731 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2655 precursor RNA and VGAM2656 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50482] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM2655 RNA and VGAM2656 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50483] VGAM2655 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2655 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2655 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2655 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50484] VGAM2656 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2656 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2656 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2656 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50485] It is appreciated that a function of VGR3731 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3731 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3731 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3731 gene: VGAM2655 host target protein and VGAM2656 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2655 and VGAM2656

[50486] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3732(VGR3732) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50487] VGR3732 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3732 gene was detected is described hereinabove with reference to Figs. 6-15.

[50488] VGR3732 gene encodes VGR3732 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50489] VGR3732 precursor RNA folds spatially, forming VGR3732 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3732 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3732 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50490] VGR3732 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2677 precursor RNA and VGAM2678 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50491] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2677 RNA and VGAM2678 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50492] VGAM2677 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2677 host target RNA, herein schematically represented by VGAM1

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2677 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2677 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50493] VGAM2678 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2678 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2678 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2678 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50494] It is appreciated that a function of VGR3732 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attack-

ing a host. Accordingly, utilities of VGR3732 gene include diagnosis, prevention and treatment of viral infection by Avian paramyxovirus 6. Specific functions, and accordingly utilities, of VGR3732 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3732 gene: VGAM2677 host target protein and VGAM2678 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2677 and VGAM2678

[50495] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3733(VGR3733) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50496] VGR3733 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding,

RNA viral gene. The method by which VGR3733 gene was detected is described hereinabove with reference to Figs. 6-15.

[50497] VGR3733 gene encodes VGR3733 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50498] VGR3733 precursor RNA folds spatially, forming VGR3733 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3733 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3733 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50499] VGR3733 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2683 precursor RNA and VGAM2684 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively,

each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50500] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2683 RNA and VGAM2684 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50501] VGAM2683 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2683 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2683 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2683 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50502] VGAM2684 RNA, herein schematically represented by

VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2684 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2684 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2684 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50503] It is appreciated that a function of VGR3733 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3733 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 63. Specific functions, and accordingly utilities, of VGR3733 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3733 gene: VGAM2683 host target protein and VGAM2684 host target protein, herein schematically rep-

resented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2683 and VGAM2684

[50504] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3734(VGR3734) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50505] VGR3734 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3734 gene was detected is described hereinabove with reference to Figs. 6-15.

[50506] VGR3734 gene encodes VGR3734 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50507] VGR3734 precursor RNA folds spatially, forming VGR3734 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3734 folded

precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3734 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50508] VGR3734 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2693 precursor RNA and VGAM2694 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50509] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2693 RNA and VGAM2694 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM

RNA of Fig. 8.

[50510] VGAM2693 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2693 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2693 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2693 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50511] VGAM2694 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2694 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2694 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2694 host target protein, herein schematically

represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50512] It is appreciated that a function of VGR3734 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3734 gene include diagnosis, prevention and treatment of viral infection by Monkeypox virus. Specific functions, and accordingly utilities, of VGR3734 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3734 gene: VGAM2693 host target protein and VGAM2694 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2693 and VGAM2694

[50513] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3735(VGR3735) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates

expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50514] VGR3735 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3735 gene was detected is described hereinabove with reference to Figs. 6-15.

[50515] VGR3735 gene encodes VGR3735 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50516] VGR3735 precursor RNA folds spatially, forming VGR3735 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3735 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3735 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50517] VGR3735 folded precursor RNA, herein designated VGR

FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2695 precursor RNA and VGAM2696 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50518] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2695 RNA and VGAM2696 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50519] VGAM2695 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2695 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2695 host target RNA, herein

schematically represented by VGAM1 HOST TARGET RNA into VGAM2695 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50520] VGAM2696 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2696 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2696 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2696 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50521] It is appreciated that a function of VGR3735 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3735 gene include diagnosis, prevention and treatment of viral infection by Feline immunodeficiency virus. Specific functions, and accordingly utilities, of VGR3735 gene, herein designated

VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3735 gene: VGAM2695 host target protein and VGAM2696 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2695 and VGAM2696

[50522] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3736(VGR3736) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50523] VGR3736 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3736 gene was detected is described hereinabove with reference to Figs. 6-15.

[50524] VGR3736 gene encodes VGR3736 precursor RNA, herein

designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50525] VGR3736 precursor RNA folds spatially, forming VGR3736 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3736 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3736 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50526] VGR3736 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2700 precursor RNA and VGAM2701 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50527] The above mentioned VGAM precursor RNAs are diced by

DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2700 RNA and VGAM2701 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50528] VGAM2700 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2700 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2700 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2700 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50529] VGAM2701 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2701 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2701 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2701 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50530] It is appreciated that a function of VGR3736 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3736 gene include diagnosis, prevention and treatment of viral infection by Equine herpesvirus 2. Specific functions, and accordingly utilities, of VGR3736 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3736 gene: VGAM2700 host target protein and VGAM2701 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2700 and VGAM2701

[50531] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3737(VGR3737) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50532] VGR3737 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3737 gene was detected is described hereinabove with reference to Figs. 6-15.

[50533] VGR3737 gene encodes VGR3737 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50534] VGR3737 precursor RNA folds spatially, forming VGR3737 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3737 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3737 precur-

sor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50535] VGR3737 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2710 precursor RNA and VGAM2711 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50536] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2710 RNA and VGAM2711 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50537] VGAM2710 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2710 host

target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2710 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2710 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50538] VGAM2711 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2711 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2711 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2711 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50539] It is appreciated that a function of VGR3737 gene, herein designated VGR GENE, is inhibition of expression of host

target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3737 gene include diagnosis, prevention and treatment of viral infection by Pepper mottle virus. Specific functions, and accordingly utilities, of VGR3737 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3737 gene: VGAM2710 host target protein and VGAM2711 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2710 and VGAM2711

[50540] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3738(VGR3738) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50541] VGR3738 gene, herein designated VGR GENE, is a novel

bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3738 gene was detected is described hereinabove with reference to Figs. 6-15.

[50542] VGR3738 gene encodes VGR3738 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50543] VGR3738 precursor RNA folds spatially, forming VGR3738 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3738 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3738 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50544] VGR3738 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2723 precursor RNA and VGAM2724 precursor RNA, herein schematically represented by

VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50545] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2723 RNA and VGAM2724 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50546] VGAM2723 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2723 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2723 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2723 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50547] VGAM2724 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2724 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2724 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2724 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50548] It is appreciated that a function of VGR3738 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3738 gene include diagnosis, prevention and treatment of viral infection by Human papillomavirus type 6. Specific functions, and accordingly utilities, of VGR3738 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3738 gene: VGAM2723 host target protein and

VGAM2724 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2723 and VGAM2724

[50549] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3739(VGR3739) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50550] VGR3739 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3739 gene was detected is described hereinabove with reference to Figs. 6-15.

[50551] VGR3739 gene encodes VGR3739 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50552] VGR3739 precursor RNA folds spatially, forming VGR3739 folded precursor RNA, herein designated VGR FOLDED

PRECURSOR RNA. It is appreciated that VGR3739 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3739 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50553] VGR3739 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2729 precursor RNA and VGAM2730 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50554] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2729 RNA and VGAM2730 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respec-

tively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50555] VGAM2729 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2729 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2729 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2729 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50556] VGAM2730 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2730 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2730 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA

into VGAM2730 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50557] It is appreciated that a function of VGR3739 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3739 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 8. Specific functions, and accordingly utilities, of VGR3739 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3739 gene: VGAM2729 host target protein and VGAM2730 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2729 and VGAM2730

[50558] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3740(VGR3740) viral gene, which encodes an operon-like cluster of novel viral

micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50559] VGR3740 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3740 gene was detected is described hereinabove with reference to Figs. 6-15.

[50560] VGR3740 gene encodes VGR3740 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50561] VGR3740 precursor RNA folds spatially, forming VGR3740 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3740 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3740 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50562] VGR3740 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2739 precursor RNA and VGAM2740 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50563] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2739 RNA and VGAM2740 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50564] VGAM2739 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2739 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2739 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2739 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50565] VGAM2740 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2740 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2740 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2740 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50566] It is appreciated that a function of VGR3740 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3740 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions,

and accordingly utilities, of VGR3740 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3740 gene: VGAM2739 host target protein and VGAM2740 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2739 and VGAM2740

[50567] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3741(VGR3741) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50568] VGR3741 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3741 gene was detected is described hereinabove with reference to Figs. 6-15.

[50569] VGR3741 gene encodes VGR3741 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50570] VGR3741 precursor RNA folds spatially, forming VGR3741 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3741 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3741 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50571] VGR3741 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2741 precursor RNA and VGAM2742 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50572] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2741 RNA and VGAM2742 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50573] VGAM2741 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2741 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2741 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2741 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50574] VGAM2742 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2742 host target RNA, herein schematically represented by VGAM2

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2742 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2742 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50575] It is appreciated that a function of VGR3741 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3741 gene include diagnosis, prevention and treatment of viral infection by Rabbit oral papillomavirus. Specific functions, and accordingly utilities, of VGR3741 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3741 gene: VGAM2741 host target protein and VGAM2742 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to

VGAM2741 and VGAM2742

[50576] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3742(VGR3742) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50577] VGR3742 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3742 gene was detected is described hereinabove with reference to Figs. 6-15.

[50578] VGR3742 gene encodes VGR3742 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50579] VGR3742 precursor RNA folds spatially, forming VGR3742 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3742 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to

the fact that the nucleotide sequence of VGR3742 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50580] VGR3742 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2745 precursor RNA and VGAM2746 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50581] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2745 RNA and VGAM2746 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50582] VGAM2745 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2745 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2745 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2745 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50583] VGAM2746 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2746 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2746 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2746 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50584] It is appreciated that a function of VGR3742 gene, herein

designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3742 gene include diagnosis, prevention and treatment of viral infection by Human herpesvirus 5. Specific functions, and accordingly utilities, of VGR3742 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3742 gene: VGAM2745 host target protein and VGAM2746 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2745 and VGAM2746

[50585] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3743(VGR3743) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50586] VGR3743 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3743 gene was detected is described hereinabove with reference to Figs. 6-15.

[50587] VGR3743 gene encodes VGR3743 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50588] VGR3743 precursor RNA folds spatially, forming VGR3743 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3743 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3743 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50589] VGR3743 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2757 precursor RNA and VGAM2758

precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50590] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2757 RNA and VGAM2758 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50591] VGAM2757 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2757 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2757 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2757 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of

Fig. 1.

[50592] VGAM2758 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2758 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2758 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2758 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50593] It is appreciated that a function of VGR3743 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3743 gene include diagnosis, prevention and treatment of viral infection by Bean common mosaic necrosis virus. Specific functions, and accordingly utilities, of VGR3743 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like clus-

ter of VGR3743 gene: VGAM2757 host target protein and VGAM2758 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2757 and VGAM2758

[50594] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3744(VGR3744) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50595] VGR3744 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3744 gene was detected is described hereinabove with reference to Figs. 6-15.

[50596] VGR3744 gene encodes VGR3744 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50597] VGR3744 precursor RNA folds spatially, forming VGR3744

folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3744 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3744 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50598] VGR3744 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 3 separate VGAM precursor RNAs, VGAM2774 precursor RNA, VGAM2775 precursor RNA and VGAM2776 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR and VGAM3 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50599] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2774

RNA, VGAM2775 RNA and VGAM2776 RNA respectively, herein schematically represented by VGAM1 RNA, VGAM2 RNA and VGAM3 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50600] VGAM2774 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2774 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2774 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2774 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50601] VGAM2775 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2775 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2775 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2775 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50602] VGAM2776 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM2776 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2776 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM2776 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50603] It is appreciated that a function of VGR3744 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3744 gene include diagnosis, prevention and treatment of viral infection by Infectious flacherie virus. Specific functions, and accord-

ingly utilities, of VGR3744 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3744 gene: VGAM2774 host target protein, VGAM2775 host target protein and VGAM2776 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2774, VGAM2775 and VGAM2776

[50604] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3745(VGR3745) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50605] VGR3745 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3745 gene was detected is described hereinabove with reference to Figs.

6-15.

[50606] VGR3745 gene encodes VGR3745 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50607] VGR3745 precursor RNA folds spatially, forming VGR3745 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3745 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3745 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50608] VGR3745 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2777 precursor RNA and VGAM2778 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECUR-

SOR RNA of Fig. 8.

[50609] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2777 RNA and VGAM2778 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50610] VGAM2777 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2777 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2777 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2777 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50611] VGAM2778 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2778 host

target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2778 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2778 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50612] It is appreciated that a function of VGR3745 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3745 gene include diagnosis, prevention and treatment of viral infection by Gallid herpesvirus 3. Specific functions, and accordingly utilities, of VGR3745 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3745 gene: VGAM2777 host target protein and VGAM2778 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is

elaborated hereinabove with reference to VGAM2777 and VGAM2778

[50613] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3746(VGR3746) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50614] VGR3746 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3746 gene was detected is described hereinabove with reference to Figs. 6-15.

[50615] VGR3746 gene encodes VGR3746 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50616] VGR3746 precursor RNA folds spatially, forming VGR3746 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3746 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art

as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3746 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50617] VGR3746 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2779 precursor RNA and VGAM2780 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50618] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2779 RNA and VGAM2780 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50619] VGAM2779 RNA, herein schematically represented by

VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2779 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2779 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2779 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50620] VGAM2780 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2780 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2780 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2780 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50621] It is appreciated that a function of VGR3746 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3746 gene include diagnosis, prevention and treatment of viral infection by Sorghum mosaic virus. Specific functions, and accordingly utilities, of VGR3746 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3746 gene: VGAM2779 host target protein and VGAM2780 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2779 and VGAM2780

[50622] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3747(VGR3747) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known

in the art.

[50623] VGR3747 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3747 gene was detected is described hereinabove with reference to Figs. 6-15.

[50624] VGR3747 gene encodes VGR3747 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50625] VGR3747 precursor RNA folds spatially, forming VGR3747 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3747 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3747 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50626] VGR3747 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM pre-

cursor RNAs, VGAM2785 precursor RNA and VGAM2786 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50627] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2785 RNA and VGAM2786 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50628] VGAM2785 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2785 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2785 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2785 host target protein, herein schematically

represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50629] VGAM2786 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2786 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2786 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2786 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50630] It is appreciated that a function of VGR3747 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3747 gene include diagnosis, prevention and treatment of viral infection by Meleagrid herpesvirus 1. Specific functions, and accordingly utilities, of VGR3747 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM

RNAs comprised in the operon-like cluster of VGR3747 gene: VGAM2785 host target protein and VGAM2786 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2785 and VGAM2786

[50631] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3748(VGR3748) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50632] VGR3748 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3748 gene was detected is described hereinabove with reference to Figs. 6-15.

[50633] VGR3748 gene encodes VGR3748 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50634] VGR3748 precursor RNA folds spatially, forming VGR3748 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3748 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3748 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50635] VGR3748 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2813 precursor RNA and VGAM2814 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50636] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2813

RNA and VGAM2814 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50637] VGAM2813 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2813 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2813 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2813 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50638] VGAM2814 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2814 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM2814 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2814 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50639] It is appreciated that a function of VGR3748 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3748 gene include diagnosis, prevention and treatment of viral infection by Rice yellow stunt virus. Specific functions, and accordingly utilities, of VGR3748 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3748 gene: VGAM2813 host target protein and VGAM2814 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2813 and VGAM2814

[50640] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred

to here as Viral Genomic Record 3749(VGR3749) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50641] VGR3749 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3749 gene was detected is described hereinabove with reference to Figs. 6-15.

[50642] VGR3749 gene encodes VGR3749 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50643] VGR3749 precursor RNA folds spatially, forming VGR3749 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3749 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3749 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which

is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50644] VGR3749 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2824 precursor RNA and VGAM2825 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50645] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2824 RNA and VGAM2825 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50646] VGAM2824 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2824 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2824 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2824 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50647] VGAM2825 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2825 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2825 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2825 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50648] It is appreciated that a function of VGR3749 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3749 gene include

diagnosis, prevention and treatment of viral infection by Melanoplus sanguinipes entomopoxvirus. Specific functions, and accordingly utilities, of VGR3749 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3749 gene: VGAM2824 host target protein and VGAM2825 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2824 and VGAM2825

[50649] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3750(VGR3750) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50650] VGR3750 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3750 gene was

detected is described hereinabove with reference to Figs. 6-15.

[50651] VGR3750 gene encodes VGR3750 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50652] VGR3750 precursor RNA folds spatially, forming VGR3750 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3750 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3750 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50653] VGR3750 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2828 precursor RNA and VGAM2829 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin

shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50654] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2828 RNA and VGAM2829 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50655] VGAM2828 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2828 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2828 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2828 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50656] VGAM2829 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding

site located in an untranslated region of VGAM2829 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2829 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2829 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50657] It is appreciated that a function of VGR3750 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3750 gene include diagnosis, prevention and treatment of viral infection by Rabbit fibroma virus. Specific functions, and accordingly utilities, of VGR3750 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3750 gene: VGAM2828 host target protein and VGAM2829 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN re-

spectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2828 and VGAM2829

[50658] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3751(VGR3751) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50659] VGR3751 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3751 gene was detected is described hereinabove with reference to Figs. 6-15.

[50660] VGR3751 gene encodes VGR3751 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50661] VGR3751 precursor RNA folds spatially, forming VGR3751 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3751 folded precursor RNA, herein designated VGR FOLDED PRECUR-

SOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3751 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50662] VGR3751 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2839 precursor RNA and VGAM2840 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50663] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2839 RNA and VGAM2840 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50664] VGAM2839 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2839 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2839 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2839 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50665] VGAM2840 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2840 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2840 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2840 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of

Fig. 1.

[50666] It is appreciated that a function of VGR3751 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3751 gene include diagnosis, prevention and treatment of viral infection by Paramecium bursaria Chlorella virus 1. Specific functions, and accordingly utilities, of VGR3751 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3751 gene: VGAM2839 host target protein and VGAM2840 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2839 and VGAM2840

[50667] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3752(VGR3752) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function

and utility of which at least one host target gene is known in the art.

[50668] VGR3752 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3752 gene was detected is described hereinabove with reference to Figs. 6-15.

[50669] VGR3752 gene encodes VGR3752 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50670] VGR3752 precursor RNA folds spatially, forming VGR3752 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3752 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3752 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50671] VGR3752 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellu-

lar enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2849 precursor RNA and VGAM2850 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50672] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM2849 RNA and VGAM2850 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50673] VGAM2849 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2849 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2849 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA

into VGAM2849 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50674] VGAM2850 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2850 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2850 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2850 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50675] It is appreciated that a function of VGR3752 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3752 gene include diagnosis, prevention and treatment of viral infection by Yam mosaic virus. Specific functions, and accordingly utilities, of VGR3752 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the

host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3752 gene: VGAM2849 host target protein and VGAM2850 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2849 and VGAM2850

[50676] Fig. 9 further provides a conceptual description of novel bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3753(VGR3753) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50677] VGR3753 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3753 gene was detected is described hereinabove with reference to Figs. 6-15.

[50678] VGR3753 gene encodes VGR3753 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typi-

cally several hundred nucleotides long.

[50679] VGR3753 precursor RNA folds spatially, forming VGR3753 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3753 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3753 precursor RNA comprises a plurality of segments, the first half of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50680] VGR3753 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 2 separate VGAM precursor RNAs, VGAM2947 precursor RNA and VGAM2948 precursor RNA, herein schematically represented by VGAM1 PRECURSOR and VGAM2 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50681] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA

segments of about 22 nucleotides in length, VGAM2947 RNA and VGAM2948 RNA respectively, herein schematically represented by VGAM1 RNA and VGAM2 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50682] VGAM2947 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM2947 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2947 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM2947 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50683] VGAM2948 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM2948 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM2948 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM2948 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50684] It is appreciated that a function of VGR3753 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3753 gene include diagnosis, prevention and treatment of viral infection by Porcine reproductive and respiratory syndrome virus. Specific functions, and accordingly utilities, of VGR3753 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3753 gene: VGAM2947 host target protein and VGAM2948 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN andVGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM2947 and VGAM2948

[50685] Fig. 9 further provides a conceptual description of novel

bioinformatically detected regulatory viral gene, referred to here as Viral Genomic Record 3754(VGR3754) viral gene, which encodes an operon-like cluster of novel viral micro RNA-like genes, each of which in turn modulates expression of at least one host target gene, the function and utility of which at least one host target gene is known in the art.

[50686] VGR3754 gene, herein designated VGR GENE, is a novel bioinformatically detected regulatory, non protein coding, RNA viral gene. The method by which VGR3754 gene was detected is described hereinabove with reference to Figs. 6-15.

[50687] VGR3754 gene encodes VGR3754 precursor RNA, herein designated VGR PRECURSOR RNA, an RNA molecule, typically several hundred nucleotides long.

[50688] VGR3754 precursor RNA folds spatially, forming VGR3754 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA. It is appreciated that VGR3754 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, comprises a plurality of what is known in the art as hairpin structures. These hairpin structures are due to the fact that the nucleotide sequence of VGR3754 precursor RNA comprises a plurality of segments, the first half

of each such segment having a nucleotide sequence which is at least a partial inversed-reversed sequence of the second half thereof, as is well known in the art.

[50689] VGR3754 folded precursor RNA, herein designated VGR FOLDED PRECURSOR RNA, is naturally processed by cellular enzymatic activity into at least 8 separate VGAM precursor RNAs, VGAM3012 precursor RNA, VGAM3012 precursor RNA, VGAM3012 precursor RNA, VGAM3012 precursor RNA, VGAM3012 precursor RNA, VGAM3012 precursor RNA, VGAM3012 precursor RNA and VGAM3012 precursor RNA, herein schematically represented by VGAM1 PRECURSOR, VGAM2 PRECURSOR, VGAM3 PRECURSOR, VGAM4 PRECURSOR, VGAM5 PRECURSOR, VGAM6 PRECURSOR, VGAM7 PRECURSOR and VGAM8 PRECURSOR respectively, each of which VGAM precursor RNAs being a hairpin shaped RNA segment, corresponding to VGAM PRECURSOR RNA of Fig. 8.

[50690] The above mentioned VGAM precursor RNAs are diced by DICER COMPLEX of Fig. 8, yielding respective short RNA segments of about 22 nucleotides in length, VGAM3012 RNA, VGAM3012 RNA, VGAM3012 RNA, VGAM3012 RNA, VGAM3012 RNA, VGAM3012 RNA, VGAM3012 RNA and VGAM3012 RNA respectively, herein schematically repre-

sented by VGAM1 RNA, VGAM2 RNA, VGAM3 RNA, VGAM4 RNA, VGAM5 RNA, VGAM6 RNA, VGAM7 RNA and VGAM8 RNA respectively, each of which VGAM RNAs corresponding to VGAM RNA of Fig. 8.

[50691] VGAM3012 RNA, herein schematically represented by VGAM1 binds complimentarily to a host target binding site located in an untranslated region of VGAM3012 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM3012 host target RNA, herein schematically represented by VGAM1 HOST TARGET RNA into VGAM3012 host target protein, herein schematically represented by VGAM1 HOST TARGET PROTEIN, both of Fig. 1.

[50692] VGAM3012 RNA, herein schematically represented by VGAM2 binds complimentarily to a host target binding site located in an untranslated region of VGAM3012 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby in-

hibiting translation of VGAM3012 host target RNA, herein schematically represented by VGAM2 HOST TARGET RNA into VGAM3012 host target protein, herein schematically represented by VGAM2 HOST TARGET PROTEIN, both of Fig. 1.

[50693] VGAM3012 RNA, herein schematically represented by VGAM3 binds complimentarily to a host target binding site located in an untranslated region of VGAM3012 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM3012 host target RNA, herein schematically represented by VGAM3 HOST TARGET RNA into VGAM3012 host target protein, herein schematically represented by VGAM3 HOST TARGET PROTEIN, both of Fig. 1.

[50694] VGAM3012 RNA, herein schematically represented by VGAM4 binds complimentarily to a host target binding site located in an untranslated region of VGAM3012 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE

I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM3012 host target RNA, herein schematically represented by VGAM4 HOST TARGET RNA into VGAM3012 host target protein, herein schematically represented by VGAM4 HOST TARGET PROTEIN, both of Fig. 1.

[50695] VGAM3012 RNA, herein schematically represented by VGAM5 binds complimentarily to a host target binding site located in an untranslated region of VGAM3012 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM3012 host target RNA, herein schematically represented by VGAM5 HOST TARGET RNA into VGAM3012 host target protein, herein schematically represented by VGAM5 HOST TARGET PROTEIN, both of Fig. 1.

[50696] VGAM3012 RNA, herein schematically represented by VGAM6 binds complimentarily to a host target binding site located in an untranslated region of VGAM3012 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA, which host target binding site corre-

sponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM3012 host target RNA, herein schematically represented by VGAM6 HOST TARGET RNA into VGAM3012 host target protein, herein schematically represented by VGAM6 HOST TARGET PROTEIN, both of Fig. 1.

[50697] VGAM3012 RNA, herein schematically represented by VGAM7 binds complimentarily to a host target binding site located in an untranslated region of VGAM3012 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM3012 host target RNA, herein schematically represented by VGAM7 HOST TARGET RNA into VGAM3012 host target protein, herein schematically represented by VGAM7 HOST TARGET PROTEIN, both of Fig. 1.

[50698] VGAM3012 RNA, herein schematically represented by VGAM8 binds complimentarily to a host target binding site located in an untranslated region of VGAM3012 host target RNA, herein schematically represented by VGAM8

HOST TARGET RNA, which host target binding site corresponds to a host target binding site such as BINDING SITE I, BINDING SITE II or BINDING SITE III of Fig. 1, thereby inhibiting translation of VGAM3012 host target RNA, herein schematically represented by VGAM8 HOST TARGET RNA into VGAM3012 host target protein, herein schematically represented by VGAM8 HOST TARGET PROTEIN, both of Fig. 1.

[50699] It is appreciated that a function of VGR3754 gene, herein designated VGR GENE, is inhibition of expression of host target genes, as part of a novel viral mechanism of attacking a host. Accordingly, utilities of VGR3754 gene include diagnosis, prevention and treatment of viral infection by Vaccinia virus. Specific functions, and accordingly utilities, of VGR3754 gene, herein designated VGR GENE, correlate with, and may be deduced from, the identity of the host target genes, which are inhibited by VGAM RNAs comprised in the operon-like cluster of VGR3754 gene: VGAM3012 host target protein, VGAM3012 host target protein, VGAM3012 host target protein, VGAM3012 host target protein, VGAM3012 host target protein, VGAM3012 host target protein, VGAM3012 host target protein and VGAM3012 host target protein, herein schematically rep-

resented by VGAM1 HOST TARGET PROTEIN through VGAM HOST TARGET PROTEIN respectively. The function of these host target genes is elaborated hereinabove with reference to VGAM3012, VGAM3012, VGAM3012, VGAM3012, VGAM3012, VGAM3012, VGAM3012 and VGAM3012

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[50702] It is appreciated by persons skilled in the art that the present invention is not limited by what has been particularly shown and described hereinabove. Rather the scope of the present invention includes both combinations and subcombinations of the various features described hereinabove as well as variations and modifications which would occur to persons skilled in the art upon reading the specifications and which are not in the prior art.

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